

SEARCH REQUEST FORM

Requestor's Name: JONATHAN CREPEAU Serial Number: 09/936,611
Date: 8-9-05 Phone: (571) 272-1299 Art Unit: 1746

Search Topic:

Please write a detailed statement of search topic. Describe specifically as possible the subject matter to be searched. Define any terms that may have a special meaning. Give examples or relevant citations, authors, keywords, etc., if known. For sequences, please attach a copy of the sequence. You may include a copy of the broadest and/or most relevant claim(s).

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☐ A.A. Sequence
☒ Structure (1)
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☐ Dialog
☐ APS
☐ Geninfo
☐ SDC
☐ DARC/Questel
☐ Other

IN THE CLAIMS

Please cancel claim 8 without prejudice or disclaimer and amend the remaining claims as follows:

1. (Currently Amended) A non-aqueous electrolyte secondary battery comprising:
 - a positive electrode;
 - a negative electrode containing a negative electrode mix containing a material capable of absorbing and releasing lithium, wherein the material is at least one selected from the group consisting of alloys, intermetallic compounds, carbonaceous materials, organic compounds, inorganic compounds, metal complexes and organic high molecular compounds; and
 - a non-aqueous electrolyte,wherein the positive electrode contains a lithium manganese composite oxide, which contains lithium when synthesizing the oxide, as an active material and the negative electrode contains at least one compound selected from the group consisting of ~~sodium compounds, potassium compounds, and strontium compounds,~~
NaOH, Na₂O, Na₂O₂, NaO₂, Na₂CO₃, NaHCO₃, Na₂SiO₃, NaNH₂, NaN₃, NaHC₂, KOH, K₂O, K₂O₂, KO₂, KN₃, KNH₂, KHC₂, Sr(OH)₂, SrO, SrO₂, and SrCO₃,
and the content of said compounds in the negative electrode mix is such that the total content of the elements of sodium,

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potassium and strontium is not less than 0.01% by weight and not more than 10% by weight based on the negative electrode mix.

2. CANCELLED.

3. CANCELLED.

4. CANCELLED.

5. (Previously Presented) A non-aqueous electrolyte secondary battery according to claim 1, wherein the lithium manganese composite oxide is of cubic system and has a specific surface area of not more than $2.0 \text{ m}^2/\text{g}$, an average particle diameter of not less than $3 \text{ }\mu\text{m}$ and not more than $30 \text{ }\mu\text{m}$ and a lattice constant a of not more than $8.25 \text{ }\text{\AA}$.

6. (Previously Presented) A non-aqueous electrolyte secondary battery according to claim 1, wherein the lithium manganese composite oxide is of rhombic system and has a specific surface area of not more than $5.0 \text{ m}^2/\text{g}$, an average particle diameter of not less than $3 \text{ }\mu\text{m}$ and not more than $30 \text{ }\mu\text{m}$, and a lattice constant a of not less than $2.75 \text{ }\text{\AA}$, b of not less than $5.70 \text{ }\text{\AA}$ and c of not less than $4.55 \text{ }\text{\AA}$.



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Enter your Contact Information below:

Name: Jonathan Crepeau

Employee Number: 75637

Phone: 2-1299

Art Unit or Office: 1746

Building & Room Number: rem 6c11

Enter the case serial number (Required): 09/936611

If not related to a patent application, please enter NA here.

Class / Subclass(es) 429/224**Earliest Priority Filing Date:** 6/23/99**Format preferred for results:**☒ Paper ☐ Diskette ☐ E-mail**Provide detailed information on your search topic:**

- In your own words, describe in detail the concepts or subjects you want us to search.
- Include synonyms, keywords, and acronyms. Define terms that have special meanings.
- *For Chemical Structure Searches Only*
Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers
- *For Sequence Searches Only*

SCIENTIFIC REFERENCE BR
Sci & Tech Inf. Ctr.

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Pat. & T.M. Office

Include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

- ***For Foreign Patent Family Searches Only***
Include the country name and patent number.
- Provide examples or give us relevant citations, authors, etc., if known.
- FAX or send the **abstract, pertinent claims** (not all of the claims), **drawings, or chemical structures** to your EIC or branch library.

Enter your Search Topic Information below:

I am simply looking for a lithium (i.e. nonaqueous) battery comprising an electrode containing any of the species recited in attached claim 1. These are essentially oxides, hydroxides, carbonates, and nitrides of potassium, sodium, and strontium.

Special Instructions and Other Comments:

(For fastest service, let us know the best times to contact you, in case the searcher needs further clarification on your search.)

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=> D HIS

FILE 'REGISTRY'

		E LITHIUM MANGANESE OXIDE/CN
L1	1	S E3
L2	834	S (LI(L)MN(L)O)/ELS (L) 3/ELC.SUB
		E SODIUM HYDROXIDE/CN
L3	1	S E3
		E DISODIUM OXIDE/CN
L4	1	S E3
		E DISODIUM DIOXIDE/CN
L5	1	S E3
		E SODIUM DIOXIDE/CN
L6	1	S E3
		E SODIUM CARBONATE/CN
L7	1	S E3
L8	1	S SODIUM BICARBONATE/CN
		E NA2O3SI/MF
		E SODIUM SILICATE/CN
L9	1	S E16
		E SODIUM AMIDE/CN
L10	1	S E3
		E SODIUM TRINITRIDE/CN
		E SODIUM NITRIDE/CN
L11	1	S E7
		E SODIUM HYDROGEN CARBIDE/CN
		E C2HNA/MF
L12	5	S E3
		E POTASSIUM HYDROXIDE/CN
L13	1	S E3
		E DIPOTASSIUM OXIDE/CN
L14	1	S E3
		E DIPOTASSIUM DIOXIDE/CN
		E POTASSIUM PEROXIDE/CN
L15	1	S E3
		E POTASSIUM DIOXIDE/CN
L16	1	S E3
		E POTASSIUM NITRIDE/CN
		E KN3/MF

L17 4 S E3
 E POTASSIUM AMIDE/CN
 L18 1 S E3
 E C2HK/MF
 L19 4 S E3
 E STRONTIUM DIHYDROXIDE/CN
 L20 1 S E3
 E STRONTIUM OXIDE/CN
 L21 1 S E3
 E STRONTIUM DIOXIDE/CN
 L22 1 S E3
 E STRONTIUM CARBONATE/CN
 L23 1 S E3

FILE 'HCA'

L24 4763 S L1 OR L2 OR LIMNO4
 L25 373783 S L3 OR NAOH
 L26 65541 S L4 OR NA2O
 L27 4743 S L5 OR NA2O2
 L28 449 S L6 OR NAO2
 L29 123842 S L7 OR NA2CO3
 L30 69476 S L8 OR NAHCO3
 L31 10860 S L9 OR NA2SIO3
 L32 7500 S L10 OR NANH2
 L33 17354 S L11 OR NAN3
 L34 387 S L12 OR NAHC2 OR NAC2H OR C2HNA OR HC2NA
 L35 155089 S L13 OR KOH
 L36 55240 S L14 OR K2O
 L37 383 S L15 OR K2O2
 L38 1273 S L16 OR KO2
 L39 614 S L17 OR KN3
 L40 1625 S L18 OR KNH2
 L41 70 S L19 OR KHC2 OR KC2H OR C2HK OR HC2K
 L42 1655 S L20 OR SR(W)OH(W)2
 L43 16494 S L21 OR SRO
 L44 560 S L22 OR SRO2
 L45 7181 S L23 OR SRCO3
 L46 222133 S ANOD## OR (NEG# OR NEGATIVE#) (2A)ELECTROD##
 L47 10187 S L46 AND L25
 L48 837 S L46(3A)L25
 L49 13 S L46(3A)L26
 L50 9 S L46(3A)L27
 L51 0 S L46(3A)L28
 L52 6 S L46 AND L28
 L53 130 S L46(3A)L29
 L54 44 S L46(3A)L30
 L55 28 S L46(3A)L31
 L56 2 S L46(3A)L32

L57 39 S L46 AND L32
L58 3 S L46(3A)L33
L59 54 S L46 AND L33
L60 0 S L46(3A)L34
L61 4 S L46 AND L34
L62 719 S L46(3A)L35
L63 6 S L46(3A)L36
L64 1 S L46(3A)L37
L65 11 S L46 AND L37
L66 0 S L46(3A)L38
L67 16 S L46 AND L38
L68 0 S L46(3A)L39
L69 0 S L46 AND L39
L70 2 S L46(3A)L40
L71 15 S L46 AND L40
L72 0 S L46(3A)L41
L73 0 S L46 AND L41
L74 8 S L46(3A)L42
L75 10 S L46(3A)L43
L76 1 S L46(3A)L44
L77 10 S L46 AND L44
L78 6 S L46(3A)L45
L79 209753 S BATTERY OR BATTERIES OR (ELECTROCHEM? OR ELECTROLY? OR
L80 43675 S NONAQ# OR NONAQUEOUS? OR NONWATER? OR NONH2O OR NON(A) (
L81 929 S L79 AND L80 AND L24
L82 3254 S LIMN2O4
L83 960 S L79 AND L80 AND (L24 OR L82)
L84 529 S L83 AND L46
L85 3 S L84 AND L25
L86 3 S L84 AND L26
L87 1 S L84 AND L27
L88 0 S L84 AND L28
L89 3 S L84 AND L29
L90 0 S L84 AND L30
L91 1 S L84 AND L31
L92 1 S L84 AND L32
L93 0 S L84 AND L33
L94 0 S L84 AND L34
L95 5 S L84 AND L35
L96 1 S L84 AND L36
L97 0 S L84 AND L37
L98 0 S L84 AND L38
L99 0 S L84 AND L39
L100 0 S L84 AND L40
L101 0 S L84 AND L41
L102 1 S L84 AND L42
L103 0 S L84 AND L43
L104 0 S L84 AND L44

L105 1 S L84 AND L45
 L106 12 S L85-L105
 L107 QUE ELECTROD## OR ANOD## OR CATHOD##
 L108 8767 S L79 AND L80 AND L107
 L109 7539 S L108 AND (L24 OR L82 OR LITHIUM# OR LITHIAT? OR LI)
 L110 41 S L109 AND L25
 L111 7 S L109 AND L26
 L112 2 S L109 AND L27
 L113 0 S L109 AND L28
 L114 20 S L109 AND L29
 L115 7 S L109 AND L30
 L116 4 S L109 AND L31
 L117 1 S L109 AND L32
 L118 0 S L109 AND L33
 L119 0 S L109 AND L34
 L120 35 S L109 AND L35
 L121 4 S L109 AND L36
 L122 0 S L109 AND L37
 L123 0 S L109 AND L38
 L124 0 S L109 AND L39
 L125 0 S L109 AND L40
 L126 0 S L109 AND L41
 L127 4 S L109 AND L42
 L128 6 S L109 AND L43
 L129 0 S L109 AND L44
 L130 6 S L109 AND L45
 L131 34 S L111-L113 OR L115-L119 OR L121-L130
 L132 77 S L110 OR L114 OR L120
 L133 44 S L132 AND L46
 L134 8 S L133 AND (L24 OR L82)
 L135 0 S (L49 OR L65 OR L67 OR L75 OR L77) AND L133
 L136 0 S (L49 OR L65 OR L67 OR L75 OR L77) AND L131
 L137 0 S L134 NOT L106
 L138 12 S L106 OR L134
 L139 47 S (L50 OR L52 OR L56 OR L58 OR L61 OR L63 OR L64 OR L70 O
 L140 53 S (L49 OR L65 OR L67 OR L75 OR L77) NOT (L138 OR L139)
 L141 26 S L131 NOT (L138 OR L139 OR L140)
 L142 34 S L133 NOT (L138 OR L139 OR L140 OR L141)
 L143 43 S L139 AND (1840-1999/PY OR 1840-1999/PRY)
 L144 41 S L140 AND (1840-1999/PY OR 1840-1999/PRY)
 L145 19 S L141 AND (1840-1999/PY OR 1840-1999/PRY)
 L146 29 S L142 AND (1840-1999/PY OR 1840-1999/PRY)

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L138 ANSWER 1 OF 12 HCA COPYRIGHT 2005 ACS on STN

Bad date

142:339120 Lithium secondary **battery** for use as a power source
 for memory backup. Yoshimura, Seiji; Imachi, Naoki; Saishou, Keiji;
 Takeuchi, Masanobu; Takano, Yasuo (Japan). U.S. Pat. Appl. Publ. US
 2005069779 A1 20050331, 8 pp. (English). CODEN: USXXCO.
 APPLICATION: US 2004-947325 20040923. PRIORITY: JP 2003-333650
 20030925.

AB The invention concerns a lithium secondary **battery**
 including a pos. **electrode**, a neg.
electrode which is a lithium-aluminum alloy, a separator of
 a glass fiber including SiO₂, B₂O₃ and **Na₂O**, and a
nonaq. electrolyte including a solute and a solvent. The
 lithium secondary **battery** has excellent **battery**
 characteristics after a reflow treatment.

IT **12057-17-9**, Lithium manganese oxide (**LiMn₂O₄**)
 (lithium secondary **battery** for use as power source for
 memory backup)

RN 12057-17-9 HCA

CN Lithium manganese oxide (LiMn₂O₄) (6CI, 7CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+=====+=====		
O	4	17778-80-2
Mn	2	7439-96-5
Li	1	7439-93-2

IT **1313-59-3**, Sodium oxide (**Na₂O**), uses
12136-45-7, Potassium oxide (**K₂O**), uses
 (lithium secondary **battery** for use as power source for
 memory backup)

RN 1313-59-3 HCA

CN Sodium oxide (Na₂O) (9CI) (CA INDEX NAME)

Na—O—Na

RN 12136-45-7 HCA

CN Potassium oxide (K₂O) (8CI, 9CI) (CA INDEX NAME)

K-O-K

IC ICM H01M002-16
ICS H01M004-40; H01M010-40
INCL 429247000; 429231950; 429224000; 429324000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76
ST lithium secondary **battery** use power source memory backup
IT Polyoxyalkylenes, uses
(alkyl group-terminated; lithium secondary **battery** for
use as power source for memory backup)
IT Intercalation
(electrochem.; lithium secondary **battery** for use as
power source for memory backup)
IT Electric resistance
Memory devices
Secondary **battery** separators
(lithium secondary **battery** for use as power source for
memory backup)
IT Glass fibers, uses
(lithium secondary **battery** for use as power source for
memory backup)
IT Carbon black, uses
(lithium secondary **battery** for use as power source for
memory backup)
IT Secondary **batteries**
(lithium; lithium secondary **battery** for use as power
source for memory backup)
IT 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate
110-71-4, 1,2-Dimethoxyethane 111-96-6, Diethylene glycol dimethyl
ether 112-36-7, Diethylene glycol diethyl ether 112-49-2,
Triethylene glycol dimethyl ether 143-24-8, Tetraethylene glycol
dimethyl ether 4499-99-4, Triethylene glycol diethyl ether
7429-90-5, Aluminum, uses 7439-93-2D, Lithium,
perfluoroalkylsulfonyl imide 7791-03-9, Lithium perchlorate
11107-04-3, Sus316 11109-50-5, Sus304 **12057-17-9**,
Lithium manganese oxide (**LiMn2O4**) 12798-95-7
14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium
hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate
33454-82-9, Lithium triflate 90076-65-6 132404-42-3
132843-44-8, Lithium bis(pentafluoroethylsulfonyl)imide
142703-60-4 189217-56-9
(lithium secondary **battery** for use as power source for
memory backup)
IT 518-44-5, Fluorescein 1303-86-2, Boron oxide (B2O3), uses
1305-78-8, Calcium oxide, uses **1313-59-3**, Sodium oxide (

Na₂O), uses 7631-86-9, Silica, uses **12136-45-7**,
Potassium oxide (**K₂O**), uses
(lithium secondary **battery** for use as power source for
memory backup)

IT 59371-97-0
(lithium secondary **battery** for use as power source for
memory backup)

L138 ANSWER (2) OF 12 HCA COPYRIGHT 2005 ACS on STN *Bal date*
139:325951 Precursor electric **battery** and **lithium**
secondary **battery**. Fukuoka, Satoru; Morita, Seiji;
Nishiguchi, Nobuhiro; Naruse, Satoru; Imanishi, Masahiro; Muraki,
Masayuki; Ise, Tadashi; Yamamoto, Yuji (Sanyo Electric Co., Ltd.,
Japan). Jpn. Kokai Tokkyo Koho JP 2003297361 A2 20031017, 7 pp.
(Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-286194 20020930.
PRIORITY: JP 2002-24384 20020131.

AB The title **battery** is characterized by being able to
restrict the redox decompn. of the electrolyte soln. due to
battery temp. increase which could cause the **battery**
vol. expansion, inner resistance increase, and the decrease of
battery charge capacity. The precursor **battery**
consists of a precursor pos. **electrode** contg. precursor
pos. **electrode** active material, a precursor **neg.**
electrode, and **nonaq.** electrolyte.
Lithium manganese composite oxide contg. trivalent Mn is
used as the precursor pos. **electrode** active material, such
as LiMnO₂ or Li₂Mn₂O₄. The pos. **electrode** active material
also contains boron oxide of .ltoreq.1-20% of the total mass. The
neg. electrode active material is made of material
free of **Li** but being able to absorb and store **Li**

IT **12162-79-7P**, **Lithium** manganese oxide LiMnO₂
166187-76-4P, **Lithium** manganese oxide Li₂Mn₂O₄
(precursor elec. **battery** and **lithium**
secondary **battery** using **electrode** active
material)

RN 12162-79-7 HCA

CN Manganate (MnO₂1-), lithium (9CI) (CA INDEX NAME)



RN 166187-76-4 HCA

CN Lithium manganese oxide (Li₂Mn₂O₄) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	4	17778-80-2
Mn	2	7439-96-5
Li	2	7439-93-2

IT **1310-58-3**, Potassium hydroxide, reactions
(precursor elec. **battery** and **lithium**
secondary **battery** using **electrode** active
material)

RN 1310-58-3 HCA

CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

K-OH

IC ICM H01M004-58

ICS H01M002-02; H01M010-40

CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76

ST precursor elec **battery lithium** secondary
electrode active material

IT Secondary **batteries**
(**lithium**; precursor elec. **battery** and
lithium secondary **battery** using
electrode active material)

IT **Electrodes**
(precursor elec. **battery** and **lithium**
secondary **battery** using **electrode** active
material)

IT Carbon black, uses
Fluoropolymers, uses
Polythiophenylenes
(precursor elec. **battery**; precursor elec.
battery and **lithium** secondary **battery**
using **electrode** active material)

IT 1303-86-2, Boron oxide, uses
(precursor elec. **battery** and **lithium**
secondary **battery** using **electrode** active
material)

IT **12162-79-7P**, **Lithium** manganese oxide LiMnO₂
166187-76-4P, **Lithium** manganese oxide Li₂Mn₂O₄
(precursor elec. **battery** and **lithium**
secondary **battery** using **electrode** active
material)

- IT **1310-58-3**, Potassium hydroxide, reactions **1310-65-2**,
Lithium hydroxide **1313-13-9**, Manganese dioxide, reactions
1317-34-6, Manganese oxide Mn_2O_3
 (precursor elec. **battery** and **lithium**
 secondary **battery** using **electrode** active
 material)
- IT **7439-93-2**, **Lithium**, uses
 (precursor elec. **battery** and **lithium**
 secondary **battery** using **electrode** active
 material)
- IT **7429-90-5**, Aluminum, uses **9002-84-0**, Polytetrafluoroethylene
12798-95-7
 (precursor elec. **battery**; precursor elec.
battery and **lithium** secondary **battery**
 using **electrode** active material)

L138 ANSWER ⁽³⁾ OF 12 HCA COPYRIGHT 2005 ACS on STN *Bad Date*
 138:15262 Secondary **lithium battery**. Ito, Akinori;
 Fujii, Akihiro; Shiozaki, Ryuji; Okabe, Kazuya; Yufu, Hiroshi (Yuasa
 Corporation, Japan). Jpn. Kokai Tokkyo Koho JP 2002352860 A2
 20021206, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP
 2001-162085 20010530.

AB The **battery** having a **Li**-intercalating
cathode, an **anode** and an **nonaq.**
 electrolyte soln., contains .gtoreq.1 compd., whose aq. soln. is
 alk., in a place contacting the electrolyte. Preferably, the compd.
 is selected from Li_2SiO_3 , **Na₂SiO₃**, K_2SiO_3 , LiOH ,
NaOH, **KOH**, sodium borate and potassium borate.

IT **39457-42-6**, **Lithium** manganese oxide
 (**lithium battery cathodes** contg.
 compd. showing alky. in aq. solns. between **electrodes**
 contacting electrolyte)

RN **39457-42-6** HCA

CN Lithium manganese oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Mn	x	7439-96-5
Li	x	7439-93-2

IT **1310-58-3**, Potassium hydroxide, uses **1310-73-2**,
 Sodium hydroxide, uses **6834-92-0**, Sodium silicate (**Na₂SiO₃**)
 (secondary **lithium batteries** contg. compd.
 showing alky. in aq. solns. between **electrodes**
 contacting electrolyte)

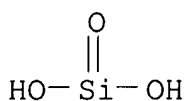
RN 1310-58-3 HCA
CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

K-OH

RN 1310-73-2 HCA
CN Sodium hydroxide (Na(OH)) (9CI) (CA INDEX NAME)

Na-OH

RN 6834-92-0 HCA
CN Silicic acid (H₂SiO₃), disodium salt (8CI, 9CI) (CA INDEX NAME)



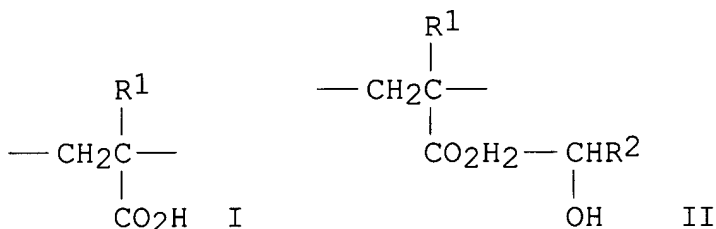
●2 Na

IC ICM H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary **lithium battery** aq alk compd compn
IT **Battery cathodes**
(**lithium battery cathodes** contg.
compd. showing alky. in aq. solns. between **electrodes**
contacting electrolyte)
IT Secondary **battery** separators
(**lithium battery** separators contg. compd.
showing alky. in aq. solns. between **electrodes**
contacting electrolyte)
IT Secondary **batteries**
(**lithium**; secondary **lithium batteries**
contg. compd. showing alky. in aq. solns. between
electrodes contacting electrolyte)
IT **39457-42-6, Lithium** manganese oxide
(**lithium battery cathodes** contg.
compd. showing alky. in aq. solns. between **electrodes**
contacting electrolyte)
IT **1310-58-3**, Potassium hydroxide, uses 1310-66-3,
Lithium hydroxide monohydrate **1310-73-2**, Sodium
hydroxide, uses **6834-92-0**, Sodium silicate (
Na₂SiO₃) 10006-28-7, Potassium silicate (K₂SiO₃)
10102-24-6, **Lithium** silicate (Li₂SiO₃) 10555-76-7,

Sodium metaborate tetrahydrate
 (secondary **lithium batteries** contg. compd.
 showing alky. in aq. solns. between **electrodes**
 contacting electrolyte)

L138 ANSWER (4) OF 12 HCA COPYRIGHT 2005 ACS on STN *Bad date*
 136:56415 Binder compositions for secondary **lithium**
battery and the **battery**. Nishimura, Noboru;
 Suzuki, Kenji; Mashimo, Kiyotaka; Nakazawa, Akira; Ito, Toshihiko
 (Hitachi Ltd., Japan; Hitachi Chemical Co., Ltd.). Jpn. Kokai
 Tokkyo Koho JP 2001357853 A2 20011226, 12 pp. (Japanese). CODEN:
 JKXXAF. APPLICATION: JP 2000-180740 20000612.

GI



AB The binder is a copolymer contg. repeating units I (R1 = H or Me) and II (R2 = mono-epoxy compd. residue), has acid value 200-700 mg **KOH/g**, and is dissolved an/or dispersed in a **nonaq** . solvent. The **battery** uses LixMnyO2 [0.2 .ltoreq.x .ltoreq.2.5 (sic), 0.8 .ltoreq.y .ltoreq.1.25] **cathode** and/or **Li** intercalating carbonaceous **anode**, having an active mass slurry contg. the binder applied on a collector, and having the solvent remove afterwards.

IT **39457-42-6, Lithium** manganese oxide
 (binder compns. for **electrodes** in secondary
lithium batteries)

RN 39457-42-6 HCA

CN Lithium manganese oxide (9CI) (CA INDEX NAME)

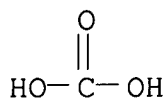
Component	Ratio	Component Registry Number
O	x	17778-80-2
Mn	x	7439-96-5
Li	x	7439-93-2

IC ICM H01M004-62

ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST secondary **lithium battery electrode**
carboxylic copolymer binder
IT **Battery electrodes**
Binders
(binder compns. for **electrodes** in secondary
lithium batteries)
IT Carbonaceous materials (technological products)
(binder compns. for **electrodes** in secondary
lithium batteries)
IT **39457-42-6, Lithium** manganese oxide 331628-40-1,
Poly(acrylic acid), ester with phenyl glycidyl ether
(binder compns. for **electrodes** in secondary
lithium batteries)

L138 ANSWER (5) OF 12 HCA COPYRIGHT 2005 ACS on STN *INSTANT APP.*
134:74019 secondary **nonaqueous** electrolyte **batteries**
. Nakashima, Takuya; Arimoto, Shinji; Nagayama, Masatoshi; Nitta,
Yoshiaki (Matsushita Electric Industrial Co., Ltd., Japan). PCT
Int. Appl. WO 2000079620 A1 20001228, 26 pp. DESIGNATED STATES: W:
CN, KR, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT,
LU, MC, NL, PT, SE. (Japanese). CODEN: PIXXD2. APPLICATION: WO
2000-JP4040 20000621. PRIORITY: JP 1999-176447 19990623.
AB The **batteries** have **Li Mn** oxide **cathodes**
, **Li** intercalating **anodes**, and **nonaq.**
electrolyte solns.; where the **anodes** contain Na, K, Ca,
and/or Sr. Preferably, the **Li Mn** oxide has a cubic cryst.
structure with sp. surface area A .ltoreq.2.0 m2/g, av. particle
diam. D 3-30 .mu.m, and lattice const. La .ltoreq.8.25.ANG.; or has
a monoclinic structure with A .ltoreq.5 m2/g, D 3-30 .mu.m, and La
.gtoreq.2.75, Lb .gtoreq.5.70, and Lc .gtoreq.4.55.ANG..
IT **497-19-8**, Sodium carbonate, uses **1310-58-3**,
Potassium hydroxide, uses **1310-73-2**, Sodium hydroxide,
uses **1313-60-6**, Sodium peroxide **7782-92-5**,
Sodium amide **18480-07-4**, Strontium hydroxide
(additives for **lithium** intercalating graphite
anodes in secondary **lithium batteries**
)
RN 497-19-8 HCA
CN Carbonic acid disodium salt (8CI, 9CI) (CA INDEX NAME)



●2 Na

RN 1310-58-3 HCA
CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

K-OH

RN 1310-73-2 HCA
CN Sodium hydroxide (Na(OH)) (9CI) (CA INDEX NAME)

Na-OH

RN 1313-60-6 HCA
CN Sodium peroxide (Na₂(O₂)) (8CI, 9CI) (CA INDEX NAME)

Na-O-O-Na

RN 7782-92-5 HCA
CN Sodium amide (Na(NH₂)) (9CI) (CA INDEX NAME)

H₂N-Na

RN 18480-07-4 HCA
CN Strontium hydroxide (Sr(OH)₂) (9CI) (CA INDEX NAME)

HO-Sr-OH

IT **39457-42-6, Lithium** manganese oxide
(controlled properties of **lithium** manganese oxide for
cathodes in secondary **lithium batteries**
)

RN 39457-42-6 HCA
CN Lithium manganese oxide (9CI) (CA INDEX NAME)

Component		Ratio		Component
-----------	--	-------	--	-----------

		Registry Number
=====	+	=====
O	x	17778-80-2
Mn	x	7439-96-5
Li	x	7439-93-2

- IC ICM H01M004-02
ICS H01M004-38; H01M004-62; H01M010-40
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST secondary **lithium battery anode**
additive; sodium **anode** additive secondary **lithium battery**; potassium **anode** additive secondary **lithium battery**; calcium **anode** additive secondary **lithium battery**; strontium **anode** additive secondary **lithium battery**; **lithium** manganese oxide **battery cathode**
- IT **Battery anodes**
(additives for **lithium** intercalating graphite **anodes** in secondary **lithium batteries**)
- IT **Battery cathodes**
Crystal structure
Particle size
Surface area
(controlled properties of **lithium** manganese oxide for **cathodes** in secondary **lithium batteries**)
- IT **497-19-8**, Sodium carbonate, uses 1305-62-0, Calcium hydroxide, uses **1310-58-3**, Potassium hydroxide, uses **1310-73-2**, Sodium hydroxide, uses **1313-60-6**, Sodium peroxide **7782-92-5**, Sodium amide **18480-07-4**, Strontium hydroxide
(additives for **lithium** intercalating graphite **anodes** in secondary **lithium batteries**)
- IT 7782-42-5, Graphite, uses
(artificial; additives for **lithium** intercalating graphite **anodes** in secondary **lithium batteries**)
- IT **39457-42-6**, **Lithium** manganese oxide
(controlled properties of **lithium** manganese oxide for **cathodes** in secondary **lithium batteries**)

L138 ANSWER (6) OF 12 HCA COPYRIGHT 2005 ACS on STN
133:352660 Secondary **nonaqueous** electrolyte **batteries**
. Numata, Tatsuji; Kanbe, Chinatsu; Watanabe, Mikio (NEC Corp.,

*relevant
but in cathode*

Bad date though.

Japan). Jpn. Kokai Tokkyo Koho JP 2000311689 A2 20001107, 6 pp.
(Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-117879 19990426.

AB The **batteries** use Li Mn oxide cathodes and Li intercalating **anodes**, and contain oxides and/or carbonates of La, Sr, Nd, and/or Sm or a multiple oxide of Mn and .gtoreq.1 of the above metals.

IT **39457-42-6**, Lithium manganese oxide
(additives for lithium manganese oxide cathodes in secondary lithium **batteries**)

RN 39457-42-6 HCA

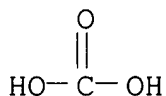
CN Lithium manganese oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Mn	x	7439-96-5
Li	x	7439-93-2

IT **1633-05-2**, Strontium carbonate
(additives for lithium manganese oxide cathodes in secondary lithium **batteries**)

RN 1633-05-2 HCA

CN Carbonic acid, strontium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



● Sr

IC ICM H01M004-62

ICS H01M004-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium **battery** carbonate additive; oxide
additive secondary lithium **battery**; manganese multiple
oxide additive secondary lithium **battery**; lanthanum compd
additive secondary lithium **battery**; strontium compd
additive secondary lithium **battery**; neodymium compd
additive secondary lithium **battery**; samarium compd
additive secondary lithium **battery**

IT **Battery** cathodes
(additives for lithium manganese oxide cathodes in secondary lithium **batteries**)

IT **39457-42-6**, Lithium manganese oxide

(additives for lithium manganese oxide cathodes in secondary lithium **batteries**)

IT 1312-81-8, Lanthanum oxide (La2O3) 1313-97-9, Neodymium oxide (Nd2O3) **1633-05-2**, Strontium carbonate 12060-58-1, Samarium oxide (Sm2O3)

(additives for lithium manganese oxide cathodes in secondary lithium **batteries**)

L138 ANSWER 7 OF 12 HCA COPYRIGHT 2005 ACS on STN

Bud date

133:323938 Manufacture of spinel-type **lithium** manganate for **battery** having high-temperature stability. Numata, Koichi; Kamata, Tsuneyoshi; Nakajima, Takuya; Arimoto, Shinji (Mitsui Mining and Smelting Co., Ltd., Japan; Matsushita Electric Industrial Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 2000290017 A2 20001017, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-101272 19990408.

AB The spinel-type **lithium** manganate is manufd. by neutralizing the manganese dioxide obtained from the ppt. of electrolysis with potassium hydroxide or potassium carbonate and mixing the electrolytic manganese dioxide having pH .gtoreq.2 with **lithium** compd. and sintering the mixt. at .gtoreq.750.degree.. The **lithium** manganate can be used as pos. **electrode** in an **nonaq.** electrolyte secondary **battery** using **lithium**-based material as **neg. electrode**.

IT **1310-58-3**, Potassium hydroxide, uses (manuf. of spinel-type **lithium** manganate for **battery** having high-temp. stability)

RN 1310-58-3 HCA

CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

K-OH

IT **12057-17-9P**, **Lithium** manganate **LiMn2O4** (spinel-type; manuf. of spinel-type **lithium** manganate for **battery** having high-temp. stability)

RN 12057-17-9 HCA

CN Lithium manganese oxide (LiMn2O4) (6CI, 7CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+=====+=====		
O	4	17778-80-2
Mn	2	7439-96-5
Li	1	7439-93-2

IC ICM C01G045-00

ICS H01M004-02; H01M004-58; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST spinel type **lithium** manganate **battery** pos
electrode
IT Fluoropolymers, uses
(binder; manuf. of spinel-type **lithium** manganate for
battery having high-temp. stability)
IT Carbon black, uses
(conducting agent; manuf. of spinel-type **lithium**
manganate for **battery** having high-temp. stability)
IT **Battery electrodes**
(manuf. of spinel-type **lithium** manganate for
battery having high-temp. stability as)
IT 9002-84-0, Polytetrafluoroethylene
(binder; manuf. of spinel-type **lithium** manganate for
battery having high-temp. stability)
IT 96-49-1, Ethylene carbonate
(electrolyte; manuf. of spinel-type **lithium** manganate
for **battery** having high-temp. stability)
IT 1313-13-9P, Manganese dioxide, preparation
(manuf. of spinel-type **lithium** manganate for
battery having high-temp. stability)
IT 584-08-7, Potassium carbonate **1310-58-3**, Potassium
hydroxide, uses
(manuf. of spinel-type **lithium** manganate for
battery having high-temp. stability)
IT 554-13-2, **Lithium** carbonate 7785-87-7, Manganese sulfate
(manuf. of spinel-type **lithium** manganate for
battery having high-temp. stability)
IT **12057-17-9P, Lithium** manganate **LiMn2O4**
(spinel-type; manuf. of spinel-type **lithium** manganate
for **battery** having high-temp. stability)

L138 ANSWER ⑧ OF 12 HCA COPYRIGHT 2005 ACS on STN

129:111372 Secondary **nonaqueous** electrolyte **batteries**

. Endo, Takuya; Takahashi, Kimio (Sony Corp., Japan). Jpn. Kokai
Tokkyo Koho JP 10188953 A2 19980721 Heisei, 5 pp. (Japanese).
CODEN: JKXXAF. APPLICATION: JP 1996-359248 19961227.

AB The **batteries** use **Li** or **Li** contg.
anodes and Mn oxide or **Li** Mn oxide
cathodes, where the **cathode** active mass mixt.
contains, in dried state, 0.5-20% alkali metal carbonate.
IT **12057-17-9, Lithium** manganese oxide (
LiMn2O4)

(manganese oxide and **lithium** manganese oxide
cathode active mass contg. alkali metal carbonate for
batteries)

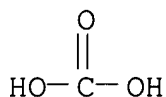
RN 12057-17-9 HCA

CN Lithium manganese oxide (LiMn2O4) (6CI, 7CI, 9CI) (CA INDEX NAME)

print out.
Na₂CO₃ in cathode.

Component	Ratio	Component Registry Number
=====	=====	=====
O	4	17778-80-2
Mn	2	7439-96-5
Li	1	7439-93-2

IT **497-19-8**, Sodium carbonate, uses
(manganese oxide and **lithium** manganese oxide
cathode active mass contg. alkali metal carbonate for
batteries)
RN 497-19-8 HCA
CN Carbonic acid disodium salt (8CI, 9CI) (CA INDEX NAME)



●2 Na

IC ICM H01M004-02
ICS H01M004-62; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary **lithium battery cathode**
carbonate additive; **lithium battery**
cathode alkali metal carbonate; manganese oxide
cathode alkali metal carbonate
IT Secondary **batteries**
(**lithium**; manganese oxide and **lithium**
manganese oxide **cathode** active mass contg. alkali metal
carbonate for **batteries**)
IT 1313-13-9, Manganese dioxide, uses **12057-17-9**,
Lithium manganese oxide (**LiMn2O4**)
(manganese oxide and **lithium** manganese oxide
cathode active mass contg. alkali metal carbonate for
batteries)
IT **497-19-8**, Sodium carbonate, uses 554-13-2, **Lithium**
carbonate
(manganese oxide and **lithium** manganese oxide
cathode active mass contg. alkali metal carbonate for
batteries)

No sodium oxide only.

batteries with improved cathodes and electrolyte solvents.
 Hayashi, Katsuya; Tobishima, Shinichi; Yamaki, Junichi (Nippon
 Telegraph & Telephone, Japan). Jpn. Kokai Tokkyo Koho JP 08236151
 A2 19960913 Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION:
 JP 1995-63483 19950228.

AB The **batteries** use Li or Li alloy **anodes**,
 cathodes of $\text{Li}_x\text{Mn}_{2-y}\text{MyO}_4$ ($\text{M} = \text{Na}, \text{Mg}, \text{Sc}, \text{Y}, \text{Fe}, \text{Co}, \text{Ni}, \text{Cu}, \text{Zn}, \text{Al},$
 $\text{Pb}, \text{Sb}; x \cdot \text{ltoreq} \cdot 1.2$; and $y = >0-0.7$) or Mn_2O_4 , and Li salt
 electrolytes dissolved in mixed solvents contg. 6:4-9:1 $(\text{MeO})_2\text{CO}$ and
 cyclic esters. The cathodes need $\cdot \text{gtoreq} \cdot 3.5$ V charge finishing
 voltage. The cyclic esters may be propylene carbonate,
 $\cdot \text{gamma} \cdot$ -butyrolactone, and/or sulfolane. The Li salts may be
 0.5-1.5M LiPF_6 , LiAsF_6 , or LiClO_4 . The cathodes may be
 $\text{Li}_x\text{Mn}_{2-y}\text{CoyO}_4$.

IT **12057-17-9**, Lithium manganese oxide (**LiMn2O4**)
 (**battery** cathodes)

RN 12057-17-9 HCA

CN Lithium manganese oxide (LiMn_2O_4) (6CI, 7CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	4	17778-80-2
Mn	2	7439-96-5
Li	1	7439-93-2

IT **1313-59-3**, Sodium oxide, processes
 (in manuf. of **battery** cathodes)

RN 1313-59-3 HCA

CN Sodium oxide (Na_2O) (9CI) (CA INDEX NAME)

Na—O—Na

IC ICM H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium manganese cobalt oxide **battery** cathode;
 electrolyte **battery** methyl carbonate solvent; ester cyclic
 solvent **battery** electrolyte

IT **Battery** electrolytes
 (contg. mixed solvents)

IT Cathodes
 (**battery**, cobalt-lithium-manganese oxide)

IT 1313-13-9, Manganese oxide (MnO_2), uses **12057-17-9**,
 Lithium manganese oxide (**LiMn2O4**) 146956-26-5, Cobalt
 Lithium Manganese oxide ($\text{Co}_0.1\text{LiMn}_{1.9}\text{O}_4$) 174180-07-5, Cobalt
 lithium manganese oxide ($\text{Co}_{0-0.7}\text{Li}_{1-1.2}\text{Mn}_{1.3-2}\text{O}_4$)
 (**battery** cathodes)

- IT 96-48-0, .gamma.-Butyrolactone 108-32-7, Propylene carbonate
126-33-0, Sulfolane 616-38-6, Dimethyl carbonate
(**battery** electrolytes contg.)
- IT 1309-48-4, Magnesia, processes **1313-59-3**, Sodium oxide,
processes 1313-99-1, Nickel oxide, processes 1314-13-2, Zinc
oxide, processes 1314-36-9, Yttria, processes 1327-33-9,
Antimony oxide 1332-37-2, Iron oxide, processes 1335-25-7, Lead
oxide 1344-28-1, Alumina, processes 1344-70-3, Copper oxide
12060-08-1, Scandium oxide
(in manuf. of **battery** cathodes)
- L138 ANSWER 10 OF 12 HCA COPYRIGHT 2005 ACS on STN No *sod. oxide*
125:173397 **Nonaqueous**-electrolyte secondary lithium
batteries with improved electrolytes and cathodes. Hayashi,
Katsuya; Tobishima, Shinichi; Arai, So; Yamaki, Junichi (Nippon
Telegraph & Telephone, Japan). Jpn. Kokai Tokkyo Koho JP 08190933
A2 19960723 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION:
JP 1995-15577 19950106.
- AB The **batteries** use Li-intercalatable **anodes**,
cathodes, which need charge end voltage .gtoreq.3.5 V, and Li salt
electrolytes dissolved in mixed solvents contg. .gtoreq.5:5 and
<0:10 vol. ratio of ethylene carbonate (I) and esters or ethers
having lower viscosity than that of I. The cathodes may be from
mixed oxides contg. $\text{Li}_x\text{Mn}_2\text{-yMyO}_4$ ($\text{M} = \text{Na, Mg, Sc, Y, Co, Ni, Cu, Zn, Al, Pb, Sb}$; $x = 0\text{-}1.2$; $y = 0\text{-}0.7$) and Mn_2O_4 . The esters or ethers
may be $(\text{MeO})_2\text{CO}$, $(\text{MeO})_2\text{CO}$, and/or Me Et carbonate. The Li salts may
be LiPF_6 , LiAsF_6 , or LiClO_4 at 0.5-1.5 mol/L. The **batteries**
may use the electrolyte solvents contg. 3:7-1:9 vol. ratio of I and
 $(\text{MeO})_2\text{CO}$, and cathodes from $\text{Li}_x\text{Mn}_2\text{-yCoyO}_4$ ($x = 0\text{-}1.2$; $y = 0\text{-}0.7$).
- IT **1313-59-3**, Sodium oxide, processes
(cathode component; solvent contg. ethylene carbonate and ester
or ether for Li salt electrolytes in **battery** using Li
Mn oxide cathodes)
- RN 1313-59-3 HCA
CN Sodium oxide (Na_2O) (9CI) (CA INDEX NAME)

Na—O—Na

- IT **12057-17-9**, Lithium manganese oxide (**LiMn₂O₄**)
(solvent contg. ethylene carbonate and ester or ether for Li salt
electrolytes in **battery** using Li Mn oxide cathodes)
- RN 12057-17-9 HCA
CN Lithium manganese oxide (LiMn_2O_4) (6CI, 7CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
=====+	=====+	=====

O		4		17778-80-2
Mn		2		7439-96-5
Li		1		7439-93-2

IC ICM H01M010-40
ICS H01M004-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST ethylene carbonate **battery** electrolyte solvent; lithium manganese cobalt oxide cathode

IT **Battery** electrolytes
(solvent contg. ethylene carbonate and ester or ether for Li salt electrolytes in **battery** using Li Mn oxide cathodes)

IT Cathodes
(**battery**, solvent contg. ethylene carbonate and ester or ether for Li salt electrolytes in **battery** using Li Mn oxide cathodes)

IT Lithium alloy, base
(**anodes**; solvent contg. ethylene carbonate and ester or ether for Li salt electrolytes in **battery** using Li Mn oxide cathodes)

IT 7439-93-2, Lithium, uses
(**anodes**; solvent contg. ethylene carbonate and ester or ether for Li salt electrolytes in **battery** using Li Mn oxide cathodes)

IT 1309-48-4, Magnesium oxide, processes **1313-59-3**, Sodium oxide, processes 1313-99-1, Nickel oxide (NiO), processes 1314-13-2, Zinc oxide, processes 1314-36-9, Yttria, processes 1327-33-9, Antimony oxide 1332-37-2, Iron oxide, processes 1335-25-7, Lead oxide 1344-28-1, Alumina, processes 1344-70-3, Copper oxide 37200-34-3, Scandium oxide
(cathode component; solvent contg. ethylene carbonate and ester or ether for Li salt electrolytes in **battery** using Li Mn oxide cathodes)

IT 7791-03-9, Lithium perchlorate **12057-17-9**, Lithium manganese oxide (**LiMn2O4**) 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 146956-26-5, Cobalt lithium manganese oxide (Co_{0.1}LiMn_{1.9}O₄) 174180-07-5, Cobalt lithium manganese oxide (Co_{0-0.7}Li_{0-1.2}Mn_{1.3-2}O₄)
(solvent contg. ethylene carbonate and ester or ether for Li salt electrolytes in **battery** using Li Mn oxide cathodes)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate
(solvent contg. ethylene carbonate and ester or ether for Li salt electrolytes in **battery** using Li Mn oxide cathodes)

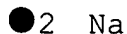
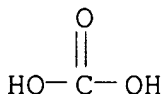
*Na₂CO₃ used
in method.
print out.*

manufacture. Ishizuka, Hiroshi; Tomiyama, Hideki (Fuji Photo Film Co., Ltd., Japan). PCT Int. Appl. WO 9613873 A1 19960509, 49 pp. DESIGNATED STATES: W: AU, CA, CN, FI, JP, KR, SG, US, VN; RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1995-JP2205 19951026. PRIORITY: JP 1994-263794 19941027; JP 1994-293635 19941104; JP 1995-75232 19950331.

- AB The **batteries** use **Li** intercalating **cathodes** and **anodes**, where either or both **electrodes** use an aq. conductive agent paste contg. a dispersing agent. The **batteries** are prepd. by applying a mixt. contg. the **Li** intercalating active mass and an aq. C compd. based conductive agent paste contg. a dispersing agent. The mixt. for **anode** has its pH adjusted to 5-10.
- IT **12162-79-7, Lithium** manganese oxide (LiMnO₂)
(dispersing agents in manuf. of **lithium** manganese oxide **cathodes** for **lithium batteries**)
- RN 12162-79-7 HCA
- CN Manganate (MnO₂1-), lithium (9CI) (CA INDEX NAME)



- IT **497-19-8, Sodium** carbonate, uses
(neutralizing agent in manuf. of paste type **electrodes** for **lithium batteries**)
- RN 497-19-8 HCA
- CN Carbonic acid disodium salt (8CI, 9CI) (CA INDEX NAME)



- IC ICM H01M010-40
ICS H01M004-04; H01M004-48; H01M004-58
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST **lithium battery electrode** conductive
agent paste; dispersing agent **battery electrode**

- conductive agent
- IT Dispersing agents
(dispersing agents in manuf. of paste type **electrodes**
for **lithium batteries**)
- IT **Electrodes**
(**battery**, dispersing agents in manuf. of paste type
electrodes for **lithium batteries**)
- IT 178990-02-8
(dispersing agents in manuf. of aluminum boron magnesium silicon
tin oxide **anodes** for **lithium**
batteries)
- IT 178990-01-7
(dispersing agents in manuf. of aluminum boron phosphorus silicon
tin oxide **anodes** for **lithium**
batteries)
- IT 178990-03-9, Aluminum tin borate oxide phosphate
($\text{Al}_{10.3}\text{Sn}(\text{BO}_3)_0.5\text{O}_{0.4}(\text{PO}_4)_0.2$)
(dispersing agents in manuf. of aluminum boron phosphorus tin
oxide **anodes** for **lithium batteries**)
- IT 178989-96-3
(dispersing agents in manuf. of aluminum germanium phosphorus
silicon tin oxide **anodes** for **lithium**
batteries)
- IT 167994-61-8, Aluminum tin oxide phosphate silicate
($\text{Al}_{10.2}\text{SnO}_{0.2}(\text{PO}_4)_0.2(\text{SiO}_3)_0.8$) 176547-75-4, Aluminum tin oxide
phosphate silicate ($\text{Al}_{10.2}\text{SnO}_{0.1}(\text{PO}_4)_0.4(\text{SiO}_3)_0.6$) 178990-00-6
(dispersing agents in manuf. of aluminum phosphorus silicon tin
oxide **anodes** for **lithium batteries**)
- IT 178989-98-5, Aluminum tin metaphosphate oxide ($\text{Al}_{10.2}\text{Sn}(\text{PO}_3)_2\text{O}_{1.3}$)
(dispersing agents in manuf. of aluminum phosphorus tin oxide
anodes for **lithium batteries**)
- IT 1309-64-4, Antimony oxide (Sb_2O_3), uses
(dispersing agents in manuf. of antimony oxide **anodes**
for **lithium batteries**)
- IT 178989-94-1, Antimony tin oxide phosphate silicate
($\text{Sb}_{0.1}\text{SnO}_{0.05}(\text{PO}_4)_0.2(\text{SiO}_3)_0.8$)
(dispersing agents in manuf. of antimony phosphorus silicon tin
oxide **anodes** for **lithium batteries**)
- IT 1304-76-3, Bismuth oxide, uses
(dispersing agents in manuf. of bismuth oxide **anodes**
for **lithium batteries**)
- IT 12190-79-3, Cobalt **lithium** oxide (CoLiO_2)
(dispersing agents in manuf. of cobalt **lithium** oxide
cathodes for **lithium batteries**)
- IT 143-19-1, Sodium oleate 9002-89-5, Poly(vinyl alcohol)
9003-01-4, Polyacrylic acid 9004-32-4 9011-13-6, Maleic
anhydride-styrene copolymer
(dispersing agents in manuf. of **electrodes** for

- lithium batteries)**
- IT 20619-16-3, Germanium oxide (GeO)
(dispersing agents in manuf. of germanium oxide **anodes**
for **lithium batteries**)
- IT 178989-95-2, Germanium tin oxide phosphate silicate
($\text{Ge}_{0.2}\text{Sn}_{0.5}(\text{PO}_4)_{0.2}(\text{SiO}_3)_{0.6}$)
(dispersing agents in manuf. of germanium phosphorus silicon tin
oxide **anodes** for **lithium batteries**)
- IT 1314-27-8, Lead oxide (Pb_2O_3) 1317-36-8, Lead oxide (PbO), uses
(dispersing agents in manuf. of lead oxide **anodes** for
lithium batteries)
- IT 12162-79-7, **Lithium** manganese oxide (LiMnO_2)
(dispersing agents in manuf. of **lithium** manganese oxide
cathodes for **lithium batteries**)
- IT 12031-65-1, **Lithium** nickel oxide (LiNiO_2)
(dispersing agents in manuf. of **lithium** nickel oxide
cathodes for **lithium batteries**)
- IT 13453-84-4, **Lithium** silicate (Li_4SiO_4)
(dispersing agents in manuf. of **lithium** silicate
anodes for **lithium batteries**)
- IT 173213-43-9, **Lithium** oxide silicide (LiOSi)
(dispersing agents in manuf. of **lithium** silicon oxide
anodes for **lithium batteries**)
- IT 176547-74-3, Tin metaphosphate oxide silicate
($\text{Sn}(\text{PO}_3)_{0.2}\text{O}_{0.1}(\text{SiO}_3)_{0.8}$) 178989-99-6, Tin metaphosphate oxide
silicate ($\text{Sn}(\text{PO}_3)_{0.4}\text{O}_{0.2}(\text{SiO}_3)_{0.6}$)
(dispersing agents in manuf. of phosphorus silicon tin oxide
anodes for **lithium batteries**)
- IT 178989-97-4, Tin metaphosphate oxide ($\text{Sn}(\text{PO}_3)_2\text{O}$)
(dispersing agents in manuf. of phosphorus tin oxide
anodes for **lithium batteries**)
- IT 15773-66-7
(dispersing agents in manuf. of silicon tin oxide **anodes**
for **lithium batteries**)
- IT 21651-19-4, Tin oxide (SnO)
(dispersing agents in manuf. of tin oxide **anodes** for
lithium batteries)
- IT 497-19-8, Sodium carbonate, uses 1310-65-2,
Lithium hydroxide
(neutralizing agent in manuf. of paste type **electrodes**
for **lithium batteries**)

L138 ANSWER (12) OF 12 HCA COPYRIGHT 2005 ACS on STN
115:75374 Secondary **nonaqueous batteries**. Furukawa,
Sanehiro; Noma, Toshiki; Yamamoto, Juji (Sanyo Electric Co., Ltd.,
Japan). Jpn. Kokai Tokkyo Koho JP 03093163 A2 19910418 Heisei, 5
pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1989-227990
19890901.

^{No}
(NaOH in cathode process.)

AB In **batteries** having **anodes** of **Li** (or **Li** alloy) and **cathode** active materials of **Li-Mn complex oxides**, the Na content of the complex oxides is decreased. Low Na content in the **cathode** increases the **cathode** capacity and charge-discharge cycle lifetime. Thus, 100 g MnO₂ obtained by electrooxidn. of a soln. contg. 1M MnO₂ and 1M H₂SO₄ was washed, suspended in 1L 0.8M NH₄OH, stirred for 2 h at 60.degree., and washed and dried to obtain MnO₂ contg. 50 ppm Na. A mixt. of 80 g MnO₂ and 20 g LiOH was baked at 375.degree. for 20 h. A **battery** with a **cathode** based on the Mn-**Li** complex oxide, a **Li anode**, and 1M LiClO₄/propylene carbonate-MeOCH₂CH₂OMe electrolyte showed 48 mA-h initial capacity vs. 29 mA-h for a ref. **battery** with **cathode** contg. complex oxide prepd. using MnO₂ contg. 5000 ppm Na (0.8M **NaOH** used instead of 0.8M NH₄OH for neutralization). The **batteries** showed much longer cycle lifetime than the ref. **batteries**.

IT **39457-42-6, Lithium** manganese oxide
(**cathode**, for **lithium batteries**,
sodium decrease in, for improved performance)

RN 39457-42-6 HCA

CN Lithium manganese oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Mn	x	7439-96-5
Li	x	7439-93-2

IC ICM H01M004-58
ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **cathode battery lithium** manganese
oxide; manganese dioxide low sodium **battery**

IT **Cathodes**
(**battery**, manganese **lithium** oxide, with low
sodium content, for improved **battery** performance)

IT **39457-42-6, Lithium** manganese oxide
(**cathode**, for **lithium batteries**,
sodium decrease in, for improved performance)

IT 7440-23-5, Sodium, uses and miscellaneous
(removal of, from manganese **lithium** oxide
cathodes, for improved performance of **lithium**
batteries)

=> D L143 1-43 TI

- L143 ANSWER 1 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI A carbon-oxygen electricity-generating unit with carbon-containing **anode**, an electrolyte and a solid state cathode
- L143 ANSWER 2 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Secondary nonaqueous-electrolyte battery
- L143 ANSWER 3 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Reprocessing for spent nuclear fuels by electrolysis and separation of the same from cladding tubes
- L143 ANSWER 4 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Simplified zinc anode with multiple electrode assemblies
- L143 ANSWER 5 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Electron microscopic characterization of SrTiO₃ films obtained by anodic spark deposition
- L143 ANSWER 6 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Synthesis of diamond-like phase of carbon by an electrochemical method
- L143 ANSWER 7 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Sealed Zn secondary battery and Zn anode with decreased solubility
- L143 ANSWER 8 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Gas releasing electrochemical cell for fluid dispensing applications
- L143 ANSWER 9 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Alkaline batteries with mercury-free zinc alloy anodes
- L143 ANSWER 10 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI The effect of some trace metal impurities on the electrowinning of zinc from Kidd Creek electrolyte
- L143 ANSWER 11 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Reagent addition effects in zinc electrowinning from Kidd Creek electrolyte
- L143 ANSWER 12 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Alkali metal (sodium) battery with coated (β -alumina) solid electrolyte
- L143 ANSWER 13 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Nickel hydroxide and derived phases obtained by chimie douce [exchange, oxidation and reduction] from sodium nickelate (NaNiO₂)

L143 ANSWER 14 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Anodic oxidation of titanium in nitrate melts

L143 ANSWER 15 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Zinc alkaline batteries

L143 ANSWER 16 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Method and an electrolytic bath for coating articles of aluminum

L143 ANSWER 17 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Electrostatic separators

L143 ANSWER 18 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Anode for lead acid battery

L143 ANSWER 19 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Effect of some implanted ions on the corrosion behavior of carbon steel

L143 ANSWER 20 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Coulometric titration of cysteine and glutathione by induced oxidation of sodium azide with anodically generated iodine

L143 ANSWER 21 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Anode slimes - wastes from capacitor production as raw material for the preparation of low-alkali finely divided aluminum hydroxides and oxides

L143 ANSWER 22 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Anodic dissolution of molybdenum in sodium peroxide solutions

L143 ANSWER 23 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Behavior of oxygen ions in nitrate melts

L143 ANSWER 24 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Anodic polarization of mild steel in molten sodium nitrate-potassium nitrate eutectic containing acid and base additions

L143 ANSWER 25 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Alkaline battery

L143 ANSWER 26 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Electrochemical behavior of oxygen in a lithium nitrate-potassium nitrate melt

L143 ANSWER 27 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Cathodic dissolution and anodic deposition of lead during the electrolysis of fused caustic potash

L143 ANSWER 28 OF 43 HCA COPYRIGHT 2005 ACS on STN

TI Anode for storage batteries

L143 ANSWER 29 OF 43 HCA COPYRIGHT 2005 ACS on STN

TI Electrostatic separation of sylvite and kieserite from crude salts containing clay

L143 ANSWER 30 OF 43 HCA COPYRIGHT 2005 ACS on STN

TI Anodic oxide films on titanium formed in molten salt electrolytes. II. Effect of formation electrolyte on nonstoichiometry of the film

L143 ANSWER 31 OF 43 HCA COPYRIGHT 2005 ACS on STN

TI The titanium electrode in oxidizing media

L143 ANSWER 32 OF 43 HCA COPYRIGHT 2005 ACS on STN

TI Measurement of gas evolution from anodes during electron bombardment

L143 ANSWER 33 OF 43 HCA COPYRIGHT 2005 ACS on STN

TI Deviations from the photoelectric proportionality law of gas-filled photocells in the low-current region and in the abnormal glow region

L143 ANSWER 34 OF 43 HCA COPYRIGHT 2005 ACS on STN

TI Electrolyses of cyanides. II. Electrolysis of cyanides in anhydrous liquid ammonia

L143 ANSWER 35 OF 43 HCA COPYRIGHT 2005 ACS on STN

TI Contribution of the study of nitrides, acetylides, and silicides. Evidence for the N^{3-} ion. Investigations of the existence of a carbon ion

L143 ANSWER 36 OF 43 HCA COPYRIGHT 2005 ACS on STN

TI Electrolysis in anhydrous acetic acid

L143 ANSWER 37 OF 43 HCA COPYRIGHT 2005 ACS on STN

TI The anodic oxidation of higher members of the aluminum family in liquid ammonia

L143 ANSWER 38 OF 43 HCA COPYRIGHT 2005 ACS on STN

TI The electrolytic dissociation of sodium and lithium acetylides in liquid ammonia

L143 ANSWER 39 OF 43 HCA COPYRIGHT 2005 ACS on STN

TI Compounds of germanium and hydrogen. III. Monoalkylgermanes. IV. Potassium germanyl. V. Electrolysis of sodium germanyl

L143 ANSWER 40 OF 43 HCA COPYRIGHT 2005 ACS on STN

TI Products of electrolysis of molten salts with an iron anode

L143 ANSWER 41 OF 43 HCA COPYRIGHT 2005 ACS on STN
 TI Electrolytic dissociation of acetylene and its metallic derivatives

L143 ANSWER 42 OF 43 HCA COPYRIGHT 2005 ACS on STN
 TI The Phosphorescence of Some Inorganic Salts

L143 ANSWER 43 OF 43 HCA COPYRIGHT 2005 ACS on STN
 TI PtO₃, A New Oxidation Product of Platinum

=> D L143 2,4,7,9,12,15,18,25,28,31 CBIB ABS HITSTR HITIND

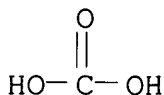
L143 ANSWER (2) OF 43 HCA COPYRIGHT 2005 ACS on STN
 129:151119 Secondary nonaqueous-electrolyte battery. Ito, Shuji;
 Murata, Toshihide; Bito, Yasuhiko; Toyoguchi, Yoshinori (Matsushita
 Electric Industrial Co., Ltd., Japan). Eur. Pat. Appl. EP 853347 A1
19980715, 51 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK,
 ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO.
 (English). CODEN: EPXXDW. APPLICATION: EP 1997-122297 19971217.
 PRIORITY: JP 1996-341012 19961220; JP 1997-54947 19970310; JP
 1997-163285 19970604.

AB The anode active material of the title battery having a high
 capacity and excellent cycling characteristics comprises a salt of a
 metal or a semimetal and a compd. selected from the oxo acids, HSCN,
 NCCN, and HCNO, where each oxo acid comprises an element selected N,
 S, C, B, P, Se, Te, W, Mo, Ti, Cr, Zr, Nb, Ta, Mn, and V, the salts
 of the oxo acids of P and B being restricted to hydrogen phosphates
 and hydrogen borates.

IT **1633-05-2**, Strontium carbonate
 (anode active material for lithium-ion batteries)

RN 1633-05-2 HCA

CN Carbonic acid, strontium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



● Sr

IC. ICM H01M004-62

ICS H01M004-48; H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 306-61-6, Magnesium thiocyanate 471-34-1, Calcium carbonate, uses

print out, SrCO₃

8124057

513-77-9, Barium carbonate 513-78-0, Cadmium carbonate 513-79-1,
 Cobalt carbonate CoCO_3 538-17-0, Aluminum thiocyanate 542-62-1,
 Barium cyanide 542-83-6, Cadmium cyanide 542-84-7, Cobalt
 cyanide $(\text{Co}(\text{CN})_2)$ 546-93-0, Magnesium carbonate 557-19-7, Nickel
 cyanide $(\text{Ni}(\text{CN})_2)$ 557-21-1, Zinc cyanide 557-42-6, Zinc
 thiocyanate 563-71-3, Ferrous carbonate 592-01-8, Calcium
 cyanide 592-05-2, Lead cyanide $\text{Pb}(\text{CN})_2$ 592-87-0, Lead
 thiocyanate 598-62-9, Manganese carbonate 598-63-0, Lead
 carbonate 865-38-3, Cadmium thiocyanate 1184-64-1, Cupric
 carbonate **1633-05-2**, Strontium carbonate 1948-47-6, Iron
 cyanide $(\text{Fe}(\text{CN})_2)$ 2090-64-4, Magnesium bicarbonate 2092-16-2,
 Calcium thiocyanate 2092-17-3, Barium thiocyanate 2768-97-0,
 Indium thiocyanate 3017-60-5 3227-61-0 3227-62-1 3251-23-8,
 Cupric nitrate 3333-67-3, Nickel carbonate 3486-35-9, Zinc
 carbonate 3602-20-8, Tin thiocyanate 3999-98-2 4100-56-5,
 Magnesium cyanide 4367-08-2, Copper cyanide $(\text{Cu}(\text{CN})_2)$ 4756-59-6
 4756-65-4, Aluminum isocyanate 5702-63-6, Stibinetri-carbonitrile
 6010-09-9 6449-00-9, Chromium carbonate $\text{Cr}_2(\text{CO}_3)_3$ 6860-10-2,
 Calcium dicyanate 7446-10-8, Lead sulfite PbSO_3 7446-14-2, Lead
 sulfate 7446-15-3 7487-88-9, Magnesium sulfate, uses 7488-51-9
 7488-55-3 7720-78-7, Ferrous sulfate 7727-43-7, Barium sulfate
 7733-02-0, Zinc sulfate 7757-86-0 7757-88-2, Magnesium sulfite
 7757-95-1, Nickel sulfite NiSO_3 7758-97-6, Lead chromate PbCrO_4
 7758-98-7, Copper sulfate, uses 7759-00-4 7759-01-5, Lead
 tungsten oxide (PbWO_4) 7759-02-6, Strontium sulfate 7778-18-9,
 Calcium sulfate 7779-86-4 7779-88-6, Zinc nitrate 7784-22-7
 7785-87-7, Manganese sulfate 7786-81-4, Nickel sulfate
 7787-39-5, Barium sulfite 7787-41-9 7787-68-0, Bismuth sulfate
 7789-14-2 7789-82-4, Calcium molybdate CaMoO_4 7790-75-2, Calcium
 tungsten oxide (CaWO_4) 7790-83-2 7790-85-4, Cadmium tungsten
 oxide (CdWO_4) 10022-31-8, Barium nitrate 10026-23-0 10028-26-9
 10031-38-6 10042-76-9, Strontium nitrate 10043-01-3, Aluminum
 sulfate $\text{Al}_2(\text{SO}_4)_3$ 10048-98-3 10099-74-8 10099-79-3, Lead
 vanadium oxide (PbV_2O_6) 10101-52-7, Zirconium silicate
 $(\text{Zr}_0.5(\text{SiO}_4)_0.5)$ 10101-53-8, Chromium sulfate 10101-96-9
 10102-02-0, Zinc nitrite 10124-36-4, Cadmium sulfate 10124-37-5,
 Calcium nitrate 10124-43-3, Cobalt sulfate 10124-53-5
 10141-05-6 10174-28-4, Chromium tin oxide (CrSnO_4) 10190-55-3,
 Lead molybdenum oxide (PbMoO_4) 10214-40-1 10257-55-3, Calcium
 sulfite 10294-58-3 10325-94-7 10343-61-0, Titanium sulfate
 $\text{Ti}_2(\text{SO}_4)_3$ 10361-44-1 10377-57-8 10377-60-3, Magnesium nitrate
 10377-66-9 11093-84-8, Indium titanium oxide $(\text{In}_2\text{TiO}_5)$
 11120-61-9, Chromium tin oxide $(\text{CrSn}_2\text{O}_6)$ 12013-45-5, Calcium
 niobium oxide $(\text{CaNb}_2\text{O}_6)$ 12013-47-7, Calcium zirconium oxide
 (CaZrO_3) 12013-95-5, Cadmium chromium oxide $(\text{CdCr}_2\text{O}_4)$
 12014-14-1, Cadmium titanium oxide (CdTiO_3) 12025-16-0, Germanium
 manganese oxide (GeMnO_3) 12032-31-4, Magnesium zirconium oxide
 (MgZrO_3) 12034-88-7, Lead niobium oxide $(\text{PbNb}_2\text{O}_6)$ 12034-89-8,

Niobium strontium oxide (Nb_2SrO_6) 12036-39-4, Strontium zirconium oxide (SrZrO_3) 12036-43-0, Titanium zinc oxide (TiZnO_3) 12048-51-0, Bismuth titanium oxide ($\text{Bi}_2\text{Ti}_2\text{O}_7$) 12048-52-1, Bismuth zirconium oxide ($\text{Bi}_2\text{Zr}_3\text{O}_9$) 12050-35-0, Cadmium tantalum oxide ($\text{Cd}_2\text{Ta}_2\text{O}_7$) 12056-04-1, Indium tantalum oxide (InTaO_4) 12058-23-0, Molybdenum tin oxide (Mo_2SnO_8) 12059-64-2, Lead niobium oxide ($\text{Pb}_2\text{Nb}_2\text{O}_7$) 12060-00-3, Lead titanate PbTiO_3 12060-01-4, Lead zirconium oxide (PbZrO_3) 12064-15-2, Gallium manganese oxide (Ga_2MnO_4) 12065-82-6, Lead tantalum oxide ($\text{Pb}_2\text{Ta}_2\text{O}_7$) 12138-50-0, Calcium tungsten oxide (CaWO_3) 12139-18-3, Cadmium manganese oxide (CdMnO_3) 12139-23-0, Cadmium zirconium oxide (CdZrO_3) 12143-37-2, Strontium tungsten oxide (SrWO_3) 12143-52-1, Lead oxide selenate ($\text{Pb}_2\text{O}(\text{SeO}_4)$) 12160-57-5, Gallium niobium oxide (GaNbO_4) 12163-26-7, Magnesium niobium oxide (MgNb_2O_6) 12163-45-0, Manganese strontium oxide (MnSrO_3) 12169-18-5, Zinc zirconium oxide (ZnZrO_3) 12169-20-9, Antimony tantalum oxide (SbTaO_4) 12177-86-5, Calcium manganese oxide (CaMnO_3) 12187-14-3, Cadmium niobium oxide ($\text{Cd}_2\text{Nb}_2\text{O}_7$) 12201-66-0, Niobium zinc oxide (Nb_2ZnO_6) 12209-35-7, Manganese tin oxide (MnSnO_3) 12209-43-7, Manganese tin oxide (Mn_2SnO_4) 12232-83-6, Bismuth chromium oxide (BiCrO_3) 12251-86-4, Aluminum tantalum oxide (AlTaO_4) 12258-25-2, Aluminum niobium oxide (AlNbO_4) 12272-28-5, Bismuth niobium oxide (BiNbO_4) 12272-29-6, Bismuth tantalum oxide (BiTaO_4) 12274-06-5, Manganese zinc oxide (MnZnO_3) 12292-47-6, Chromium indium oxide (CrInO_3) 12311-81-8, Antimony vanadium oxide (SbVO_4) 12337-20-1, Lead titanium oxide (PbTi_3O_7) 12340-07-7, Lead tungsten oxide (PbWO_3) 12362-92-4, Niobium tin oxide (Nb_2SnO_6) 12362-93-5, Niobium tin oxide ($\text{Nb}_2\text{Sn}_2\text{O}_7$) 12363-22-3, Tantalum tin oxide ($\text{Ta}_2\text{Sn}_2\text{O}_7$) 12378-52-8, Gallium tantalum oxide (GaTaO_4) 12379-00-9, Indium niobium oxide (InNbO_4) 12421-98-6, Calcium tantalum oxide ($\text{Ca}_2\text{Ta}_2\text{O}_7$) 12438-49-2, Magnesium tantalum oxide ($\text{Mg}_2\text{Ta}_2\text{O}_7$) 12438-60-7, Lead manganese oxide (PbMnO_3) 12440-09-4, Strontium tantalum oxide ($\text{Sr}_2\text{Ta}_2\text{O}_7$) 12501-29-0, Tellurium tin oxide (Te_3SnO_8) 12588-16-8, Aluminum chromium oxide (AlCrO_3) 12600-76-9, Tin zirconium oxide (SnZrO_3) 13074-68-5, Indium cyanide $\text{In}(\text{CN})_3$ 13092-66-5 13138-45-9, Nickel nitrate 13450-99-2 13451-01-9 13451-02-0, Strontium sulfite 13451-05-3, Strontium tungsten oxide (SrWO_4) 13453-58-2 13453-65-1 13464-82-9 13466-24-5 13468-91-2, Lead carbonate ($\text{Pb}(\text{HCO}_3)_2$) 13470-04-7, Strontium molybdate SrMoO_4 13473-90-0, Aluminum nitrate 13477-23-1, Cadmium sulfite CdSO_3 13478-08-5 13478-50-7 13494-90-1, Gallium nitrate 13494-91-2, Gallium sulfate $\text{Ga}_2(\text{SO}_4)_3$ 13530-50-2 13530-54-6 13530-56-8, Aluminum vanadium oxide (AlVO_4) 13530-65-9, Zinc chromate 13566-06-8, Vanadium sulfate VSO_4 13568-71-3, Manganese sulfite 13573-11-0, Magnesium tungsten oxide (MgWO_4) 13573-13-2, Magnesium vanadium oxide (MgV_2O_6) 13587-24-1 13595-85-2, Bismuth molybdenum oxide ($\text{Bi}_2\text{Mo}_3\text{O}_{12}$) 13595-86-3, Bismuth tungsten oxide

(Bi₂WO₆) 13595-87-4, Bismuth tungsten oxide (Bi₂W₃O₁₂)
 13596-21-9 13597-44-9, Zinc sulfite 13597-46-1 13597-54-1
 13597-56-3, Tungsten zinc oxide (WZnO₄) 13597-58-5, Strontium
 vanadium oxide (SrV₂O₆) 13598-37-3 13654-05-2 13689-92-4
 13709-68-7 13718-59-7 13767-03-8, Magnesium molybdate MgMoO₄
 13767-32-3, Zinc molybdate ZnMoO₄ 13770-61-1 13773-83-6
 13774-25-9 13780-03-5 13780-18-2 13814-56-7 13814-58-9
 13814-59-0 13814-62-5 13819-17-5 13826-65-8 13826-70-5, Tin
 nitrate Sn(NO₃)₄ 13845-15-3 13845-35-7 13847-12-6 13860-02-1
 13912-55-5 13972-68-4, Cadmium molybdenum oxide (CdMoO₄)
 13977-75-8 14013-02-6, Copper sulfite CuSO₃ 14013-86-6, Ferrous
 nitrate 14019-91-1 14047-62-2, Aluminum nitrite Al(NO₂)₃
 14059-33-7, Bismuth vanadium oxide (BiVO₄) 14067-62-0 14312-01-7
 14332-25-3 14332-34-4 14332-39-9 14332-59-3 14332-60-6
 14355-35-2 14373-77-4 14455-29-9

(**anode** active material for lithium-ion batteries)

L143 ANSWER 4 OF 43 HCA COPYRIGHT 2005 ACS on STN

Zinc battery

127:222992 Simplified zinc anode with multiple electrode assemblies. Sr(OH)₂
 Charkey, Allen (Energy Research Corp., USA). U.S. US 5658694 A
19970819, 4 pp. (English). CODEN: USXXAM. APPLICATION: US
 1996-721935 19960927.

AB The anode comprises 1st and 2nd Zn electrode assemblies sepd. by a
 porous hydrophobic element. Each of the Zn electrode assemblies
 includes a Zn active element and is devoid of any catalytic material
 for promoting O recombination by the Zn active element. Each Zn
 active element further comprises 1 of Ca(OH)₂, Ba(OH)₂, and Sr(OH)₂.
 The space provided by the hydrophobic element itself promotes O
 recombination without the need of any catalytic material.
 Accordingly, the degree of O recombination is not significantly
 altered, while cost savings are achieved by eliminating the
 catalytic material.

IC ICM H01M004-38

INCL 429229000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 1305-62-0, Calcium hydroxide (Ca(OH)₂), uses 17194-00-2, Barium
 hydroxide (Ba(OH)₂) 18480-07-4, Strontium hydroxide (Sr(OH)₂)

(simplified zinc battery **anode** with multiple electrode
 assemblies and contg.)

L143 ANSWER 7 OF 43 HCA COPYRIGHT 2005 ACS on STN

Zinc batt.

124:207242 Sealed Zn secondary battery and Zn anode with decreased
 solubility. Charkey, Allen (Energy Research Corporation, USA).
 Eur. Pat. Appl. EP 697746 A1 **19960221**, 9 pp. DESIGNATED
 STATES: R: DE, FR, GB. (English). CODEN: EPXXDW. APPLICATION: EP
 1995-113014 19950818. PRIORITY: US 1994-292614 19940818; US
 1995-431556 19950501.

AB A Zn anode comprises a Zn active material (ZnO), $\text{Ba}(\text{OH})_2$ or $\text{Sr}(\text{OH})_2$, and a conductive matrix including a metallic oxide (PbO , Bi_2O_3 , CdO , Ga_2O_3 , Tl_2O_3) which is more electropos. than Zn. The anode is used in a Zn secondary battery having an electrolyte (KOH) whose electrolyte constituent is a low percentage of the electrolyte. The Zn anode is split into electrode assemblies sep'd. by a porous hydrophobic element.

IT **18480-07-4**, Strontium hydroxide
(**anode**; sealed Zn secondary battery with decreased anode soly.)

RN 18480-07-4 HCA

CN Strontium hydroxide ($\text{Sr}(\text{OH})_2$) (9CI) (CA INDEX NAME)

HO—Sr—OH

IC ICM H01M004-24

ICS H01M010-34

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 1304-76-3, Bismuth oxide, uses 1305-62-0, Calciumhydroxide, uses 1314-13-2, Zinc oxide, uses 1314-32-5, Thallium oxide 1317-36-8, Lead oxide, uses 7440-66-6, Zinc, uses 12024-21-4, Gallium oxide 17194-00-2, Bariumhydroxide **18480-07-4**, Strontium hydroxide

(**anode**; sealed Zn secondary battery with decreased anode soly.)

L143 ANSWER 9 OF 43 HCA COPYRIGHT 2005 ACS on STN

117:195261 Alkaline batteries with mercury-free zinc alloy anodes. Uemura, Toyohide; Taniguchi, Takahiro (Mitsui Mining and Smelting Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 04196058 A2 **19920715** Heisei, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-322384 19901128.

Alkaline batt.

AB The batteries have anodes prep'd. from Hg-free Zn alloys, electrolyte, and 1-10 parts (based on 100 parts Zn) alkali metal hydroxide or alk. earth hydroxide additive. The additive prevents H generation caused by Zn corrosion.

IC ICM H01M004-42

ICS H01M004-06

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 1305-62-0, Calcium hydroxide [$\text{Ca}(\text{OH})_2$], uses 1309-42-8, Magnesium hydroxide [$\text{Mg}(\text{OH})_2$] 1310-58-3, Potassium hydroxide, uses 1310-65-2, Lithium hydroxide 1310-73-2, Sodium hydroxide, uses 13327-32-7, Beryllium hydroxide ($\text{Be}(\text{OH})_2$) 17194-00-2, Barium hydroxide [$\text{Ba}(\text{OH})_2$] **18480-07-4**, Strontium hydroxide [**Sr**(**OH**)**2**]

(**anodes** contg., mercury-free zinc alloy, for alk. batteries)

L143 ANSWER 12 OF 43 HCA COPYRIGHT 2005 ACS on STN *Na(NH₂) but sodium batt.*
 115:53450 Alkali metal (sodium) battery with coated (.beta.-alumina) solid electrolyte. Weber, Neill; Jones, Ivor Wynn (Chloride Silent Power Ltd., UK). PCT Int. Appl. WO 9106133 A1 **19910502**, 26 pp. DESIGNATED STATES: W: BG, CA, GB, JP, KR, SU, US; RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, NL, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1990-GB1584 19901012. PRIORITY: GB 1989-23032 19891012.

AB Flaws and all cracks in the surface of the solid electrolyte of the title battery are filled with a material, which is a liq. at the battery-operating temp., electronically insulating or semiconductive, and conductive to alkali metal cations; wets the electrolyte; and forms an interface with the alkali metal. In the case of a Na battery with a .beta.-alumina electrolyte, this coating liq. may be NaNH₂, or a reagent which reacts with Na to form NaNH₂. NaNH₂ is present in Na anode at 0.1-10 and preferably 0.5-5 g/100 mL Na. In making of the battery, the .beta.-alumina electrolyte and/or Na of the battery may be exposed to NH₃. NaNH₂ assures good wetting of the electrolyte on the initial warm up of the batteries, without the need of a long temp. soak at 350.degree. or cycling at this temp., which is normally required in prior art batteries to promote wetting.

IT **7782-92-5**, Sodium amide
 (anode contg., sodium, for good wetting of
.beta.-alumina electrolyte in batteries)

RN 7782-92-5 HCA

CN Sodium amide (Na(NH₂)) (9CI) (CA INDEX NAME)

H₂N-Na

IC ICM H01M010-39

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT **7782-92-5**, Sodium amide 12164-94-2, Ammonium azide
 (anode contg., sodium, for good wetting of
 .beta.-alumina electrolyte in batteries)

L143 ANSWER 15 OF 43 HCA COPYRIGHT 2005 ACS on STN *Zn batt.*
 107:99755 Zinc alkaline batteries. Furukawa, Saneshiro; Inoue, Kenji; Nogami, Mitsuzo (Sanyo Electric Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 62064061 A2 **19870320** Showa, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1985-204648 19850917.

AB ZnO- or Zn-based battery anode active material is mixed with Sr(OH)₂ and .gtoreq.1 oxide or hydroxide of metals having nobler redox potential than Zn to increase the efficiency and extend the battery cycle life. A mixt. of ZnO 80, Zn 10, In(OH)₃ 5, and Sr(OH)₂ 5% was kneaded with H₂O and PTFE and formed into sheets, which were bonded

to a collector plate to prep. an anode. A battery having this anode and Ni cathode had a long cycle life.

IT **18480-07-4**

(**anodes** contg., zinc, for alk. batteries)

RN 18480-07-4 HCA

CN Strontium hydroxide ($\text{Sr}(\text{OH})_2$) (9CI) (CA INDEX NAME)

HO—Sr—OH

IC ICM H01M004-42

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT **18480-07-4** 20661-21-6, Indium hydroxide
(**anodes** contg., zinc, for alk. batteries)

L143 ANSWER (18) OF 43 HCA COPYRIGHT 2005 ACS on STN *L/A batt.*
104:8318 Anode for lead acid battery. Hayashi, Toshiaki (Japan Storage Battery Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 60167266 A2 **19850830** Showa, 3 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1984-22579 19840208.

AB Finely powd. Ba salt and Sr salt are uniformly dispersed in the anode active material of Pb-acid battery. SrSO_4 and BaSO_4 are used at a (0.5-5.0):100 wt. ratio. The combination of the additives enhances the favorable nucleating effect of BaSO_4 for PbSO_4 when the additives are uniformly dispersed in the active material. Thus, Pb powder was mixed with 0.5% of a mixt. of 100 BaCO_3 and 0.48 parts SrCO_3 to obtain a BaSO_4 : SrSO_4 ratio in the active material of 100:0.5. Cycle life of batteries having anodes prepd. from this material was 350 cycles vs. 285 cycles for a control battery whose **anode** was prepd. without **SrCO_3** .

IC ICM H01M004-57

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

L143 ANSWER (25) OF 43 HCA COPYRIGHT 2005 ACS on STN *Alkaline batt.*
86:109142 Alkaline battery. Momyer, William R. (Lockheed Missiles and Space Co., Inc., USA). Ger. Offen. DE 2621931 **19761209**, 18 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1976-2621931 19760517.

AB A battery comprises an **anode** from a metal highly reactive with H_2O , e.g., Li, an insulating separator film formed on the **anode** in presence of H_2O , and an alk. electrolyte contg. H_2O_2 , Na_2O_2 , **NaO_2** , Li_2O_2 , K_2O_2 , etc. The peroxide additives improve the battery efficiency by decreasing the **anode** sensitivity to the changes in electrolyte concn., flow rate, and temp.

IC H01M004-48

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

L143 ANSWER (28) OF 43 HCA COPYRIGHT 2005 ACS on STN *Zn electrode.*
80:22148 Anode for storage batteries. Kandler, Ludwig; Wabner, Dietrich; Krienke, Wolfgang; Treptow, Wolfram; Fritz, Heinz P. (Rheinisch-Westfaelisches Elektrizitaetswerk A.-G.). Ger. Offen. DE 2219129 **19731108**, 17 pp. (German). CODEN: GWXXBX.
APPLICATION: DE 1972-2219129 19720419.
AB Anodes of low dendritic growth for storage batteries consisted of a Cu grid, coated on both sides with 3 layers contg. Zn and $\text{Sr}(\text{OH})_2$ and (or) $\text{Ba}(\text{OH})_2$. The 1st, 2nd, and 3rd layer was rich, poor in Zn, and free of Zn, resp., and in a porous plastic layer. The Zn-hydroxide layers were coated on the Cu grid mech. and (or) by electroplating.
IT **18480-07-4**
(anodes, coatings of zinc and, on copper grid, for secondary battery)
RN 18480-07-4 HCA
CN Strontium hydroxide ($\text{Sr}(\text{OH})_2$) (9CI) (CA INDEX NAME)

HO-Sr-OH

IC H01M
CC 77-2 (Electrochemistry)
IT 17194-00-2 **18480-07-4**
(anodes, coatings of zinc and, on copper grid, for secondary battery)

L143 ANSWER (31) OF 43 HCA COPYRIGHT 2005 ACS on STN *No*
64:65317 Original Reference No. 64:12192b-d The titanium electrode in oxidizing media. Khairy, E. M.; El-Khatib, M. M. (Cairo Univ.). Journal of Chemistry of the United Arab Republic, 8(1), 1-18 (English) **1965**. CODEN: JUARAK. ISSN: 0449-2285.
AB The electrochem. behavior of Ti in oxidizing media, through electrode potential and anodic polarization measurements, was examd. at 25.degree.. Expts. with spectroscopically pure rods were made in unstirred aerated solns. (A) and in solns. stirred with N (B) or with H (C). Potentials were measured vs. a S.C.E. Several oxidizing media including HClO_4 , NaOH, and Na_2O_2 were used. Anodic polarization expts. were conducted in these solns. In a few cases KF was added to exam. its effect. The potentials obtained with the Ti electrode, although showing a certain degree of irreproducibility, attain steady values after 2-4 hrs. from immersion. These steady potentials were approached from less pos. values when untreated electrodes were used, and from more pos. values when electrodes were pretreated out of contact with atm. O. The results in perchlorate media revealed appreciable corrosion, becoming greater in solns. stirred with H and still more pronounced when electrodes were subjected to redn. by H and high vacuum.

Anodic polarization at low and high c.ds. showed that passivity was more readily achieved in dil. solns., demonstrating enhanced corrosion in concd. solns. The potential-pH plots obtained in NaOH and Na2O2 were characterized by sharp breaks at about pH 13. Below pH 13 the behavior was supposed to be due to the system: adsorbed O/protective oxide/metal/soln., chem. passivity being presumably attained in such alk. media. Above pH 13 the oxide was considered to react with the soln. yielding bititanates. Passivity was acquired through anodic polarization in NaOH solns. and was attributed to the formation of protective films of a peroxy compd. In dil. Na2O2 solns. passivity was attained at lower c.ds., whereas active potentials were achieved in more concd. solns.

IT **1313-60-6**, Sodium peroxide
(titanium **anode** polarization in solns. contg.)
RN 1313-60-6 HCA
CN Sodium peroxide (Na2(O2)) (8CI, 9CI) (CA INDEX NAME)

Na-O-O-Na

CC 15 (Electrochemistry)
IT 1310-73-2, Sodium hydroxide **1313-60-6**, Sodium peroxide
7601-90-3, Perchloric acid
(titanium **anode** polarization in solns. contg.)

=> D L144 1-41 TI

L144 ANSWER 1 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Manufacture of high-energy low-consumption long-life
environment-protecting lead acid batteries

L144 ANSWER 2 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Hydrogen-absorbing alloy for battery **anode** for alkaline
storage battery

L144 ANSWER 3 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Thermodynamic properties of Sr-doped LaMnO3 perovskite in the
LaSrMnO system

L144 ANSWER 4 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Behavior of titanium species in molten Li2CO3-Na2CO3 and
Li2CO3-K2CO3 under **anodic** and cathodic conditions. I -
thermodynamic predictions at 550-750.degree.C

L144 ANSWER 5 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Solid electrolyte fuel cell anodes having porous structure

- L144 ANSWER 6 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Electrochemical removal of lead from aluminum using fused salts
- L144 ANSWER 7 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Effluent treatment in a process for producing chlorine dioxide from chloric acid
- L144 ANSWER 8 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Cyclic voltammetric behavior of platinum in dried and wet nitrates melt
- L144 ANSWER 9 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Reactivity of superoxide toward iron(II) complexes with pentadentate and hexadentate ligands derived from cyclononane
- L144 ANSWER 10 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Solid-state methane-air fuel cell and its manufacture
- L144 ANSWER 11 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Fuel cell with means for recovery hydrogen
- L144 ANSWER 12 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Secondary nickel-hydrogen batteries
- L144 ANSWER 13 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Anodes for alkaline batteries
- L144 ANSWER 14 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Catalyst-coated electrode with a low overvoltage for oxygen evolution in the electrolysis of alkaline water
- L144 ANSWER 15 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Use of thallium(I) probe for identifying sites of mobile cations in glass during electrolysis
- L144 ANSWER 16 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Some comparative surface studies of two types of nickel matrix cathode
- L144 ANSWER 17 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Ion migration study in a sodium borate glass: proposal of a new oxide transport
- L144 ANSWER 18 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Forming a silicate coating on metal
- L144 ANSWER 19 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Novel semiconducting electrodes for the photosensitized electrolysis

of water

L144 ANSWER 20 OF 41 HCA COPYRIGHT 2005 ACS on STN

TI Electrolysis with sorption of the gas evolved

L144 ANSWER 21 OF 41 HCA COPYRIGHT 2005 ACS on STN

TI Hydrogen peroxide

L144 ANSWER 22 OF 41 HCA COPYRIGHT 2005 ACS on STN

TI Use of magnetite for anodic grounders of cathodic-protection systems

L144 ANSWER 23 OF 41 HCA COPYRIGHT 2005 ACS on STN

TI Experiences with electrochemical oxygen probes in sodium loops

L144 ANSWER 24 OF 41 HCA COPYRIGHT 2005 ACS on STN

TI Apparatus for the direct generation of electricity

L144 ANSWER 25 OF 41 HCA COPYRIGHT 2005 ACS on STN

TI Battery having a cathode of an alkali metal superoxide

L144 ANSWER 26 OF 41 HCA COPYRIGHT 2005 ACS on STN

TI Electrochemical corrosion investigations in an eutectic alkali metal sulfate melt

L144 ANSWER 27 OF 41 HCA COPYRIGHT 2005 ACS on STN

TI Role of oxygen in **anodic** phenomena during electrolysis of cryolite solutions

L144 ANSWER 28 OF 41 HCA COPYRIGHT 2005 ACS on STN

TI Manufacture of cathodes for electron tubes

L144 ANSWER 29 OF 41 HCA COPYRIGHT 2005 ACS on STN

TI Magnetite anode of the system Fe₃O₄-SiO₂-MO

L144 ANSWER 30 OF 41 HCA COPYRIGHT 2005 ACS on STN

TI Conditions under which incandescence of oxide particles is produced by electron bombardment with the participation of barium

L144 ANSWER 31 OF 41 HCA COPYRIGHT 2005 ACS on STN

TI Photoelectric emission from cathodes coated with strontium oxide

L144 ANSWER 32 OF 41 HCA COPYRIGHT 2005 ACS on STN

TI Anodic depolarization in the production of sodium by electrolysis of fused chlorides

L144 ANSWER 33 OF 41 HCA COPYRIGHT 2005 ACS on STN

TI Possible galvanic cell method for monitoring the activity of O in a hot-trapped Na coolant circuit

L144 ANSWER 34 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Thermionic cathode

L144 ANSWER 35 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Evolution of gases and ions from different anodes under electron bombardment

L144 ANSWER 36 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Direct electrochemical synthesis of potassium dioxide

L144 ANSWER 37 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI The electrolysis of vacuum-tube glass stem. II. Oxidation at the positive electrode

L144 ANSWER 38 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Preparation of perbromates

L144 ANSWER 39 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI The oxidation of lithium and the alkaline earth metals in liquid ammonia

L144 ANSWER 40 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI The electrolysis of molten Na₂SO₄ I

L144 ANSWER 41 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Search for radiation accompanying the scattering of comparatively slow electrons at the surface of incandescent solids

=> D L144 1,2,5,12,13,19,25,28,34 CBIB ABS HITSTR HITIND

L144 ANSWER 1 OF 41 HCA COPYRIGHT 2005 ACS on STN L/A batt.
134:240106 Manufacture of high-energy low-consumption long-life environment-protecting lead acid batteries. Lu, Anmin; Wang, Xiaonan; Lu, Junfeng; Wang, Zheng (Peop. Rep. China). Faming Zhuanli Shenqing Gongkai Shuomingshu CN 1263362 A 20000816, 18 pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 1999-102292 19990211.
AB The batteries are manufd. by: prepg. cathode active mass paste and **anode** active mass paste, prepg. forming soln, forming the electrodes, prepg. the battery electrolyte, charging the battery, and sealing; where the **anode** paste contg. n-C₁₂H₂₅NH₂, 2-benzoimidazoethiol, 3,5-diaminobenzoic acid, nicotinic acid, nicotinic amide, 8-hydroxyquinoline, and/or other metal chelating agent; the cathode active mass paste contains hydroxylamine sulfate, 8-hydroxyquinoline, and/or other metal chelating agent; the formation is carried out in the battery case, the forming soln. is

added in several steps with the soln. concn. increases with each step, the initial forming soln. contains 6-aminopurine, acetoacetanilide, o-aminobenzoic acid, and 8-hydroxyquinoline-5-sulfonic acid and the solns. added later contain 6-aminopurine, acetoacetanilide, and o-aminobenzoic acid; the electrolyte has a 1st H₂SO₄ soln. contg. acetanilide, sulfamidine, 8-hydroxyquinoline or its sulfate salt, 2-aminophenol-4-sulfonamide, or sulfamide and a 2nd SiO₄- sol contg. tannic acid, benzoic acid or its Na salt, hydroquinone or quinone, Na pyrophosphate, benzeneacetamide, NaOH or KOH, Na₂O₂ or **K₂O₂**, 8-hydroxyquinoline, or other metal chelating agents.

IT **17014-71-0**, Potassium peroxide

(additives in electrode active mass pastes and forming soln. and electrolytes for manuf. of lead acid batteries)

RN 17014-71-0 HCA

CN Potassium peroxide (K₂(O₂)) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

K-O-O-K

IC ICM H01M010-12

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 59-67-6, Nicotinic acid, uses 63-74-1, Sulfanilamide 65-85-0, Benzoic acid, uses 73-24-5, 6-Aminopurine, uses 84-88-8, 8-Hydroxyquinoline-5-sulfonic acid 98-32-8, 2-Aminophenol-4-sulfonamide 98-92-0, Nicotinic acid amide 102-01-2, Acetoacetanilide 103-81-1, Benzeneacetamide 103-84-4, Acetanilide 106-51-4, Quinone, uses 118-92-3, o-Aminobenzoic acid 124-22-1, n-Dodecylamine 148-24-3, 8-Hydroxyquinoline, uses 532-32-1, Sodium benzoate 535-87-5, 3,5-Diaminobenzoic acid 583-39-1, 2-Benzimidazolethiol 1310-58-3, Potassium hydroxide, uses 1310-73-2, Sodium hydroxide, uses 1313-60-6, Sodium peroxide 7722-88-5, Sodium pyrophosphate 10193-36-9, Silicic acid 12385-08-9, Dihydroxybenzene **17014-71-0**, Potassium peroxide 52409-29-7, Sulfamidine

(additives in electrode active mass pastes and forming soln. and electrolytes for manuf. of lead acid batteries)

L144 ANSWER 2 OF 41 HCA COPYRIGHT 2005 ACS on STN *Alkaline batt.*

131:245573 Hydrogen-absorbing alloy for battery **anode** for alkaline storage battery. Kikuyama, Susumu; Ebiyara, Takashi; Miyahara, Akiko; Wang, Xianglong; Yuasa, Kohji (Matsushita Electric Industrial Co., Ltd., Japan). Eur. Pat. Appl. EP 944124 A1 **19990922**, 17 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 1999-102022 19990201. PRIORITY: JP 1998-36977 19980219; JP 1998-73809 19980323; JP 1998-73824 19980323; JP 1998-73825 19980323; JP 1998-73826 19980323;

JP 1998-332399 19981124.

- AB An alk. storage battery, e.g., a Ni-metal hydride battery, with excellent charge-discharge cycle life characteristics and high-rate discharge characteristics is prepd. using an **anode** from Mm-Ni hydrogen-absorbing alloy powders with modified surface structure. The battery **anode** comprises hydrogen-absorbing alloy powders contg. .gtoreq.1 rare earth element, Ni, and .gtoreq.1 transition metal, e.g., $\text{MmNi}_{3.55}\text{Co}_{0.75}\text{Mn}_{0.4}\text{Al}_{0.3}$, where the surface of the alloy has metallic Ni exposed at the surface, pores positioned between the exposed Ni sites, and a Ni-rich layer on the alloy surface contacting the pores. The powders are treated by grinding, followed by contacting with an alk. aq. (KOH) soln., then an acidic aq. (acetic acid) soln., followed by dehydrogenation to remove absorbed H_2 using a peroxide or peroxodisulfate in the presence of acetate ions in aq. soln.
- IT **17014-71-0**, Potassium peroxide
(dehydrogenating agents; hydrogen-absorbing alloy for battery **anode** for alk. storage battery)
- RN 17014-71-0 HCA
- CN Potassium peroxide ($\text{K}_2(\text{O}_2)$) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

K-O-O-K

- IC ICM H01M004-38
ICS C01B003-00
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
- ST hydrogen absorbing alloy **anode** alk battery
- IT Secondary batteries
(alk.; hydrogen-absorbing alloy for battery **anode** for alk. storage battery)
- IT Peroxides, uses
(dehydrogenating agents; hydrogen-absorbing alloy for battery **anode** for alk. storage battery)
- IT Battery **anodes**
(hydrogen-absorbing alloy for battery **anode** for alk. storage battery)
- IT Alloys, uses
(hydrogen-absorbing; hydrogen-absorbing alloy for battery **anode** for alk. storage battery)
- IT Peroxysulfates
(peroxydisulfates, dehydrogenating agents; hydrogen-absorbing alloy for battery **anode** for alk. storage battery)
- IT 1313-60-6, Sodium peroxide 7722-84-1, Hydrogen peroxide, uses 7727-21-1 7775-27-1, Sodium peroxodisulfate 12031-80-0, Lithium peroxide **17014-71-0**, Potassium peroxide 18697-38-6, Peroxydisulfuric acid, dilithium salt

- (dehydrogenating agents; hydrogen-absorbing alloy for battery **anode** for alk. storage battery)
- IT 64-19-7, Acetic acid, uses 1310-58-3, Potassium hydroxide, uses (hydrogen-absorbing alloy for battery **anode** for alk. storage battery)
- IT 181147-99-9 (hydrogen-absorbing, **anodes**; hydrogen-absorbing alloy for battery **anode** for alk. storage battery)
- L144 ANSWER (5) OF 41 HCA COPYRIGHT 2005 ACS on STN *Fuel cell*
127:320968 Solid electrolyte fuel cell anodes having porous structure. Nagata, Masakatsu; Iwazawa, Tsutomu; Ono, Mikiyuki; Nakajima, Takenori; Yamaoka, Satoru (Fujikura Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09274921 A2 **19971021** Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-106287 19960403.
- AB The porous-film fuel anodes are manufd. by applying a Ni (or NiO)-based material powder contg. .gtoreq.1 oxide selected from MgO, CaO, SrO, Y2O3, La2O3, Sc2O3, and Al2O3 or .gtoreq.1 selected from Ti and W to the solid electrolyte and sintering. Alternatively a material powder consists of Ti or W particles coated with Ni (or NiO). The fuel anodes keep high elec. cond. and fuel gas permeability.
- IC ICM H01M004-86
ICS H01M004-90; H01M008-02; H01M008-12
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- IT 1305-78-8, Calcia, uses 1309-48-4, Magnesia, uses 1312-81-8, Lanthanum oxide (La2O3) 1314-11-0, Strontium oxide (**SrO**), uses 1314-36-9, Yttria, uses 1344-28-1, Alumina, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 12060-08-1, Scandium oxide (Sc2O3) (sintering inhibitor, **anodes** contg.; solid electrolyte fuel cell anodes having porous structure for high elec. cond. and gas permeability)
- L144 ANSWER (12) OF 41 HCA COPYRIGHT 2005 ACS on STN *NiMH batt.*
112:122271 Secondary nickel-hydrogen batteries. Sugano, Kenichi; Kanda, Motoi; Sato, Juji; Hayashida, Hirotaka (Toshiba Corp., Japan). Jpn. Kokai Tokkyo Koho JP 01283774 A2 **19891115** Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1988-111479 19880510.
- AB Electrolyte for Ni/H-absorbing alloy batteries contain an O donor. The donor is preferably an oxide or peroxide. The donor prevents accumulation of H in the **anode** in initial charge-discharge cycles of the batteries, and increases the battery life. H2O2, sealed in polyamide-coated cellulose acetate microcapsules was used as the donor in examples.
- IT **17014-71-0**, Potassium peroxide (oxygen source, electrolytes contg., for hydrogen-nickel batteries, for long lifetime)

RN 17014-71-0 HCA
CN Potassium peroxide (K₂(O₂)) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

K-O-O-K

IC ICM H01M010-26
ICS H01M010-30
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT 1305-79-9, Calcium peroxide 7722-84-1, Hydrogen peroxide, uses and miscellaneous **17014-71-0**, Potassium peroxide
(oxygen source, electrolytes contg., for hydrogen-nickel batteries, for long lifetime)

L144 ANSWER 13 OF 41 HCA COPYRIGHT 2005 ACS on STN *Alkaline batt.*
111:217222 Anodes for alkaline batteries. Nakamura, Kyonobu; Uemura, Toyohide (Mitsui Mining and Smelting Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 01187770 A2 **19890727** Heisei, 4 pp.
(Japanese). CODEN: JKXXAF. APPLICATION: JP 1988-10787 19880122.

AB Alk. earth oxide(s) are added at 0.01-5.0 wt.% of Zn in a Zn-electrolyte mixt. for use in the title anodes. These anode have suppressed H evolution and batteries using these anodes have longer discharge duration than control batteries.

IC ICM H01M004-42
ICS H01M004-06
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT 1304-56-9, Beryllium oxide (BeO) 1305-78-8, Calcium oxide, uses and miscellaneous 1309-48-4, Magnesium oxide, uses and miscellaneous 1314-11-0, Strontium oxide (**SrO**), uses and miscellaneous
(**anodes** contg., zinc amalgam, for batteries)

L144 ANSWER 19 OF 41 HCA COPYRIGHT 2005 ACS on STN *NO*
87:154857 Novel semiconducting electrodes for the photosensitized electrolysis of water. Augustynski, J.; Hinden, J.; Stalder, C. (Lab. Electrochem. Appl. Chem., Univ. Geneva, Geneva, Switz.). Journal of the Electrochemical Society, 124(7), 1063-4 (English) **1977**. CODEN: JESOAN. ISSN: 0013-4651.

AB Novel semiconducting electrodes based on polycryst. TiO₂ are formed by mixed TiO₂-M₂O₃ (M is Al, Ga, Eu, B) or TiO₂-SrO deposits on Ti substrates. The spectral responses of the photoanodes are similar to that of the single-crystal TiO₂ electrode, showing that the bandgap of TiO₂ is not modified by the doping with Al³⁺, Ga³⁺, Eu³⁺, B³⁺, or Sr²⁺. However, high quantum efficiencies are maintained for these electrodes up to very large c.ds. in contrast to the single-crystal TiO₂.

IT **1314-11-0**, uses and miscellaneous
(**anodes** contg., photoelectrochem.-cell titania, quantum

efficiency and spectral responses of)

RN 1314-11-0 HCA

CN Strontium oxide (SrO) (6CI, 8CI, 9CI) (CA INDEX NAME)

O=Sr

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 1303-86-2, uses and miscellaneous 1308-96-9 **1314-11-0**,
uses and miscellaneous 1344-28-1, uses and miscellaneous
12024-21-4

(**anodes** contg., photoelectrochem.-cell titania, quantum
efficiency and spectral responses of)

L144 ANSWER (25) OF 41 HCA COPYRIGHT 2005 ACS on STN

No

72:85660 Battery having a cathode of an alkali metal superoxide.

Trimmer, Louis E.; Cover, Hunter H., Jr. (Sundstrand Corp.). U.S.
US 3489613 **19700113**, 4 pp. (English). CODEN: USXXAM.

APPLICATION: US 1964-363401 19640429.

AB The battery or fuel cell includes a plastic container and 2 Al
anodes and a cathode composed of solid **KO2**. The
container is divided into 3 compartments by Teflon-coated
steelscreens which serve as an ion-permeable interchange wall
between the cathode situated in the central compartment and the 2
anodes placed, one each, in the side compartments. The
electrolyte is KOH. The container lid is provided with Cu-lined
ports which serve as gas vents and exists for elec. connections.
The reaction at the cathode is assumed to be 2 **KO2** + H2O
.fwdarw. 2KOH + 3/2 O2 and at the **anode** 2 Al + 3/2 O2
.fwdarw. Al2O3, giving an overall cell reaction of 2 **KO2** +
H2O + 2 Al .fwdarw. 2 KOH + Al2O3. K2Al2O4 may also form (2 KOH +
Al2O3 .fwdarw. K2Al2O4 + H2O) returning an equiv. amount of H2O to
the electrolyte soln.

IT **12030-88-5**

(cathodes, for fuel cells)

RN 12030-88-5 HCA

CN Potassium superoxide (K(O2)) (9CI) (CA INDEX NAME)

+K-O⁻=O

IC H01M

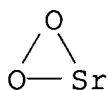
INCL 136083000

CC 77 (Electrochemistry)

IT **12030-88-5**

(cathodes, for fuel cells)

- L144 ANSWER (28) OF 41 HCA COPYRIGHT 2005 ACS on STN No
64:48432 Original Reference No. 64:9064a-d Manufacture of cathodes for
electron tubes. Maurer, Dean W.; Pleass, Charles M. (Western
Electric Co., Inc.). BE 652784 **19641231**, 19 pp.
(Unavailable). PRIORITY: US; 19630919.
- AB Electron-tube cathodes can have emissions of 48 ma. at 750.degree.
if the Ni base is coated with discrete particles of Ba-Sr, which are
themselves coated with W, Mo, Ni, or Co. The process can be carried
out by placing BaO2 and **SrO2** in a passive Ni vessel and
heating it in a quartz tube in a vacuum furnace for several hrs. at
900.degree.. The product is crushed in a Pyrex crusher with Al2O3
bars for 36 hrs. and the powder of <37 .mu. is charged to a
fluidized-bed reactor which is fluidized with Ni(CO)4 and H. The
column is operated at 100.degree. for 20 hrs. to form discrete
particles of 86% Ba-Sr, coated with 14% Ni. Ni with 0.1% Zr is
formed into cathode bases and is degreased with steam, then dried
with N and ultrasonic waves. They are washed with deionized water,
dried in air at 110.degree. for 15 min., oxidized in air at
400.degree. for 20 min., and reduced in a moist H atm. at
1050.degree. for 30 min. They are then mounted to be coated in a
plasma jet arc to a thickness of 0.0762 mm. with the Ba-Sr-Ni
coating. The plasma jet is H. The coated bases are now heated 15
min. at 800.degree. in a H atm. and compressed at 70 kg./cm.2 They
are then sintered in a Mo container and H atm. at 1000.degree. for
15 min. Ba-Sr carbonates can also be used, but they have to be
dispersed in amyl acetate and coated with Ni in an oil bath.
- CC 9 (Electric and Magnetic Phenomena)
- IT Cathodes and(or) **Negative electrodes**
(electron-tube (including oxide-coated, etc.), from Ni coated
with alk. earth oxides and metals)
- L144 ANSWER (34) OF 41 HCA COPYRIGHT 2005 ACS on STN No
54:85122 Original Reference No. 54:16196i,16197a Thermionic cathode.
Gal, Imre; Nagel, Ferenc; Oldal, Endre (Egyesult Izzolampa es
Villamossagi R. T.). DE 1031894 **19580612** From: C.Z.
1959,3935.. (Unavailable). APPLICATION: DE .
- AB The activating substance, consisting of at least 1 peroxide of alk.
earths, esp. of BaO2, is formed and sintered with a porous material
and with a substance which binds as solids the products of the
decompn. of the peroxides. Examples include the peroxides of Ba,
Sr, and Ca in a mole ratio of 2:1:2; Al, Zr, Ti, Si, Mg, Be, B, or
its alloys; or W silicide or boride.
- IT **1314-18-7**, Strontium peroxide
(cathodes (thermionic) activated with)
- RN 1314-18-7 HCA
- CN Strontium peroxide (Sr(O2)) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



INCL 21G

CC 3 (Electronic Phenomena and Spectra)

IT Cathodes and(or) **Negative electrodes**
(electron-tube (including oxide-coated, etc.), with alk. earth
peroxides as activators)

IT 1304-29-6, Barium peroxide **1314-18-7**, Strontium peroxide
(cathodes (thermionic) activated with)

=> D L145 1-19 TI

L145 ANSWER 1 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI Rechargeable spinel **lithium batteries** with
greatly improved elevated temperature cycle life

L145 ANSWER 2 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI **Nonaqueous** electrolyte **battery**

L145 ANSWER 3 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI **Electrode** active mass compositions, polymer electrolyte
matrix compositions, and manufacture of **lithium** ion
polymer **batteries** using them

L145 ANSWER 4 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI **Lithium** secondary **battery** with high safety
property

L145 ANSWER 5 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI Secondary **nonaqueous** electrolyte **batteries**

L145 ANSWER 6 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI **Electrode** active materials for **lithium** ion
secondary **battery**

L145 ANSWER 7 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI Secondary **nonaqueous** electrolyte **batteries**

L145 ANSWER 8 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI High-temperature stable secondary **nonaqueous**-electrolyte
battery and its manufacture

L145 ANSWER 9 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI Secondary **nonaqueous**-electrolyte **battery** and its **anode**

L145 ANSWER 10 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI Manufacture of rock salt-structure **lithium** ferrite by ion exchanging in solvothermal treatment

L145 ANSWER 11 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI **Lithium** transition metal composite oxides and **nonaqueous** secondary **batteries** using them

L145 ANSWER 12 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI Fluorine-containing **lithium** salts and silicates for **nonaqueous** electrolyte secondary **batteries**

L145 ANSWER 13 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI Secondary **nonaqueous** electrolyte **batteries** containing salt additives

L145 ANSWER 14 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI **Nonaqueous** secondary **batteries** with sheet-type **electrodes** containing salt thin films

L145 ANSWER 15 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI Secondary **nonaqueous** electrolyte **batteries**

L145 ANSWER 16 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI **Nonaqueous** electrolyte **batteries** with **lithium** containing manganese oxide **cathodes**

L145 ANSWER 17 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI Secondary **nonaqueous**-electrolyte **lithium** **batteries** with improved **anodes**

L145 ANSWER 18 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI Secondary **nonaqueous** **battery**

L145 ANSWER 19 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI Secondary **nonaqueous** **batteries** with carbonaceous **anode** supports

=> D L145 1-9,11-19 CBIB ABS HITSTR HITIND

L145 ANSWER 1 OF 19 HCA COPYRIGHT 2005 ACS on STN

137:387146 Rechargeable spinel **lithium** **batteries**

with greatly improved elevated temperature cycle life. Zhang, Meijie; Wang, Yu; Reimers, Jan Naess; Gee, Michael (E-One Moli

ND SrO

Energy (Canada) Limited, Can.). U.S. US 6489060 B1 20021203, 18 pp., Cont.-in-part of U.S. Ser. No. 318,854, abandoned. (English). CODEN: USXXAM. APPLICATION: US 2000-484399 20000114. PRIORITY: US 1999-318854 19990526.

AB The loss in delivered capacity (capacity fade) after cycling **non-aq.** rechargeable **lithium** manganese oxide **batteries** at elevated temps. can be greatly reduced by depositing a small amt. of certain foreign metal species on the surface of spinel in the **cathode**. In particular the foreign metal species are from compds. having either bismuth, lead, lanthanum, barium, zirconium, yttrium, strontium, zinc or magnesium. The foreign metal species are introduced to the surface of spinel by moderately heating either an aq. treated mixt. or a dry mixt. of ready-made spinel and the foreign metal compd.

IT **39457-42-6, Lithium** manganese oxide
(rechargeable spinel **lithium batteries** with greatly improved elevated temp. cycle life)

RN 39457-42-6 HCA

CN Lithium manganese oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Mn	x	7439-96-5
Li	x	7439-93-2

IT **1314-11-0, Strontium oxide, uses**
(rechargeable spinel **lithium batteries** with greatly improved elevated temp. cycle life)

RN 1314-11-0 HCA

CN Strontium oxide (SrO) (6CI, 8CI, 9CI) (CA INDEX NAME)

O=Sr

IC ICM H01M004-50
ICS H01M004-58; H01M006-00

INCL 429224000; 429231100; 029623100

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery lithium** spinel secondary improved temp cycle life

IT Oxidation
(alc.; rechargeable spinel **lithium batteries** with greatly improved elevated temp. cycle life)

IT Secondary **batteries**
(**lithium**; rechargeable spinel **lithium batteries** with greatly improved elevated temp. cycle

- life)
- IT Carbonaceous materials (technological products)
(rechargeable spinel **lithium batteries** with greatly improved elevated temp. cycle life)
- IT 301-04-2, Lead acetate 557-34-6, Zinc acetate 7439-95-4D, Magnesium, compd. 7440-24-6D, Strontium, compd. 7440-39-3D, Barium, compd. 7440-65-5D, Yttrium, compd. 7721-01-9, Tantalum pentachloride 10026-12-7, Niobium pentachloride 10361-44-1, Bismuth nitrate 12027-67-7, Ammonium molybdate 13826-66-9, Zirconyl nitrate 14017-46-0, Lanthanumperchlorate
(rechargeable spinel **lithium batteries** with greatly improved elevated temp. cycle life)
- IT 64-17-5, Ethanol, processes 67-56-1, Methanol, processes
(rechargeable spinel **lithium batteries** with greatly improved elevated temp. cycle life)
- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 623-53-0, Ethyl methyl carbonate 7782-42-5, Graphite, uses 21324-40-3, **Lithium** hexafluorophosphate **39457-42-6, Lithium** manganese oxide
(rechargeable spinel **lithium batteries** with greatly improved elevated temp. cycle life)
- IT 1304-28-5, Barium oxide, uses 1304-76-3, Bismuth oxide, uses 1309-48-4, Magnesium oxide, uses 1312-81-8, Lanthanum oxide **1314-11-0**, Strontium oxide, uses 1314-13-2, Zinc oxide, uses 1314-23-4, Zirconium oxide, uses 1314-36-9, Yttrium oxide, uses 1335-25-7, Lead oxide
(rechargeable spinel **lithium batteries** with greatly improved elevated temp. cycle life)
- L145 ANSWER 2 OF 19 HCA COPYRIGHT 2005 ACS on STN No Sr0
133:240636 **Nonaqueous** electrolyte **battery**. Tomita, Takashi; Ojima, Hideaki; Ishino, Kinichi; Kondo, Takayuki (Sony Corporation, Japan). Eur. Pat. Appl. EP 1039567 A1 20000927, 11 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2000-106324 20000323. PRIORITY: JP 1999-82375 19990325.
- AB A **nonaq.** electrolyte **battery** having improved low temp. characteristics and preservation characteristics includes a neg. **electrode** contg. a carbon material as a neg. **electrode** active material, a pos. **electrode** contg. a pos. **electrode** active material and which is arranged facing the neg. **electrode** and a **nonaq.** electrolyte arranged between the neg. and pos. **electrodes**. The neg. **electrode** contains a material not doped with **lithium** and/or not releasing **lithium** in an amt. of not less than 20 wt% and not larger than 40 wt% based on the neg.

electrode active material.
 IT 1314-11-0, Strontia, uses
 (**nonaq.** electrolyte **battery** with improved
 low-temp. characteristics)
 RN 1314-11-0 HCA
 CN Strontium oxide (SrO) (6CI, 8CI, 9CI) (CA INDEX NAME)

O==Sr

IC ICM H01M004-02
 ICS H01M004-62; H01M004-58; H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST **lithium battery nonaq** electrolyte
 IT Carboxylic acids, uses
 (estere; **nonaq.** electrolyte **battery** with
 improved low-temp. characteristics)
 IT **Battery anodes**
 Battery electrolytes
 Primary **batteries**
 (**nonaq.** electrolyte **battery** with improved
 low-temp. characteristics)
 IT Carbonaceous materials (technological products)
 Ethers, uses
 (**nonaq.** electrolyte **battery** with improved
 low-temp. characteristics)
 IT Rare earth oxides
 (**nonaq.** electrolyte **battery** with improved
 low-temp. characteristics)
 IT Fluoropolymers, uses
 (**nonaq.** electrolyte **battery** with improved
 low-temp. characteristics)
 IT Petroleum pitch
 (precursor; **nonaq.** electrolyte **battery** with
 improved low-temp. characteristics)
 IT 463-79-6D, Carbonic acid, esters, uses
 (cyclic and chain; **nonaq.** electrolyte **battery**
 with improved low-temp. characteristics)
 IT 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate
 616-38-6, Dimethyl carbonate 7782-42-5, Graphite, uses
 7791-03-9, **Lithium** perchlorate 14024-11-4,
 Lithium tetrachloroaluminate 14283-07-9, **Lithium**
 tetrafluoroborate 17347-95-4, **Lithium** hexafluorosilicate
 21324-40-3, **Lithium** hexafluorophosphate 29935-35-1,
 Lithium hexafluoroarsenate 33454-82-9, **Lithium**
 triflate 90076-65-6 132404-42-3
 (**nonaq.** electrolyte **battery** with improved
 low-temp. characteristics)

- IT 1305-78-8, Calcia, uses 1309-48-4, Magnesia, uses
1314-11-0, Strontia, uses 1314-23-4, Zirconium oxide, uses
1314-36-9, Yttria, uses 1344-28-1, Alumina, uses 1345-13-7,
Cerium oxide ce_2o_3 7631-86-9, Silica, uses 10034-77-2, Calcium
silicate ca_2sio_4 12141-46-7, Aluminum silicate al_2sio_5
(**nonaq.** electrolyte **battery** with improved
low-temp. characteristics)
- IT 12190-79-3P, Cobalt **lithium** oxide colio_2
(**nonaq.** electrolyte **battery** with improved
low-temp. characteristics)
- IT 24937-79-9, PvdF
(**nonaq.** electrolyte **battery** with improved
low-temp. characteristics)

↑ ALREADY OF
RECORD
(KHO et al.)

US
6372386

L145 ANSWER (3) OF 19 HCA COPYRIGHT 2005 ACS on STN
133:7062 **Electrode** active mass compositions, polymer
electrolyte matrix compositions, and manufacture of **lithium**
ion polymer **batteries** using them. Cho, Hun Kyu; Noh, Whan
Jin (Samsung SDI Co., Ltd., S. Korea). Jpn. Kokai Tokkyo Koho JP
2000149922 A2 20000530, 6 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1999-235660 19990823. PRIORITY: KR 1998-47289
19981105.

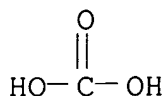
print out NaHCO_3

AB The **electrode** compns. comprise active mass, conductive
agents, binders, and 5-30 wt.% thermally decomp. plasticizers,
e.g., alkali metal carbonates, alk. earth carbonates. The polymer
electrolyte matrix compns. comprise polymers and 10-60 wt.% the
thermally decomp. plasticizers. The title **batteries** are
manufd. by following steps; casting the active mass compns. on
current collectors and then drying for forming **electrodes**;
casting the matrix compns. and then drying for forming polymer
electrolytes; heating the laminates at 60-150.degree.; pouring
electrolyte solns. contg. **nonaq.** solvents and **Li**
salts. The process does not need extn. of plasticizers and the
batteries are obtained at low cost.

IT **144-55-8**, Sodium hydrogencarbonate, uses
(plasticizers; manuf. of **lithium** ion polymer
batteries with **electrodes** and electrolytes
using thermally decomp. plasticizers)

RN 144-55-8 HCA

CN Carbonic acid monosodium salt (8CI, 9CI) (CA INDEX NAME)



● Na

IC ICM H01M004-02
ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST carbonate plasticizer **electrode lithium** ion
battery manuf; polymer electrolyte carbonate plasticizer
lithium battery manuf

IT Fluoropolymers, uses
(**lithium** complexes, electrolytes; manuf. of
lithium ion polymer **batteries** with
electrodes and electrolytes using thermally decomp.
plasticizers)

IT Secondary **batteries**
(**lithium**; manuf. of **lithium** ion polymer
batteries with **electrodes** and electrolytes
using thermally decomp. plasticizers)

IT **Battery anodes**
Battery cathodes
Battery electrodes
Battery electrolytes
Heating
Plasticizers
Polymer electrolytes
(manuf. of **lithium** ion polymer **batteries** with
electrodes and electrolytes using thermally decomp.
plasticizers)

IT Carbonates, uses
(plasticizers; manuf. of **lithium** ion polymer
batteries with **electrodes** and electrolytes
using thermally decomp. plasticizers)

IT 7782-42-5, Graphite, uses
(**anodes**; manuf. of **lithium** ion polymer
batteries with **electrodes** and electrolytes
using thermally decomp. plasticizers)

IT 12190-79-3, Cobalt **lithium** oxide (CoLiO₂)
(**cathodes**; manuf. of **lithium** ion polymer
batteries with **electrodes** and electrolytes
using thermally decomp. plasticizers)

IT 7439-93-2D, **Lithium**, polymer complexes, uses

24937-79-9D, Polyvinylidene fluoride, **lithium** complexes, electrolytes

(manuf. of **lithium** ion polymer **batteries** with **electrodes** and electrolytes using thermally decomp. plasticizers)

IT **144-55-8**, Sodium hydrogencarbonate, uses 298-14-6
471-34-1, Calcium carbonate, uses 554-13-2, **Lithium**
carbonate 1066-33-7, Ammonium hydrogencarbonate 5006-97-3,
Lithium hydrogencarbonate
(plasticizers; manuf. of **lithium** ion polymer
batteries with **electrodes** and electrolytes
using thermally decomp. plasticizers)

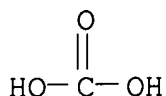
L145 ANSWER (4) OF 19 HCA COPYRIGHT 2005 ACS on STN *Cathode SrCO_3 .*
132:196737 **Lithium** secondary **battery** with high
safety property. Sunano, Taizo (Sanyo Electric Co., Ltd., Japan).
Jpn. Kokai Tokkyo Koho JP 2000077061 A2 20000314, 6 pp. (Japanese).
CODEN: JKXXAF. APPLICATION: JP 1998-245717 19980831.

AB This **Li** secondary **battery** comprises a **Li**
+-intercalatable **anode**, a **non-aq.**
electrolytic soln., and a **cathode** having a double layer
structure comprising a 1st conductive layer contg. at least a
conductive filler, a binder, and a substance decomposable at high
potential in overcharging state and formed on an elec. collector and
a 2nd layer contg. at least a **cathode** active mass, a
conductive agent, and a binder and formed on the 1st layer. The
substance decomposable at high temp. may be Li_2CO_3 , ZnCO_3 , PbCO_3 ,
and **SrCO_3** . Since the carbonates are easily decompd. at
high voltage generated by overcharging, the inner resistance of the
battery is surely increased due to elec. disconnection of
the collector and the 2nd layer by the gas evolved by the carbonate
decompn. to shut charging current without being accompanied with
abrupt temp. increase.

IT **1633-05-2**, Strontium carbonate
(in **cathode**, gas evolution by overcharging; **non**
-aq. lithium secondary **battery**
comprising overcharging preventive **cathode** for safety
property)

RN 1633-05-2 HCA

CN Carbonic acid, strontium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



● Sr

- IC ICM H01M004-02
ICS H01M004-62; H01M010-40
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST **battery cathode** layer structure overcharging
safety; carbonate decomn overcharging prevention **battery
cathode**
- IT Carbonates, uses
(in **cathode**, gas evolution by overcharging; **non
-aq. lithium** secondary **battery**
comprising overcharging preventive **cathode** for safety
property)
- IT Secondary **batteries**
(**lithium; non-aq. lithium**
secondary **battery** comprising overcharging preventive
cathode for safety property)
- IT **Battery cathodes**
(**non-aq. lithium** secondary
battery comprising overcharging preventive
cathode for safety property)
- IT Safety
(of **battery** at the time of overcharging; **non-
aq. lithium** secondary **battery**
comprising overcharging preventive **cathode** for safety
property)
- IT 554-13-2, **Lithium** carbonate 598-63-0, Lead carbonate
1633-05-2, Strontium carbonate 3486-35-9, Zinc carbonate
(in **cathode**, gas evolution by overcharging; **non
-aq. lithium** secondary **battery**
comprising overcharging preventive **cathode** for safety
property)

L145 ANSWER (5) OF 19 HCA COPYRIGHT 2005 ACS on STN

132:110650 Secondary **nonaqueous** electrolyte **batteries**

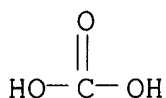
. Kato, Kiyomi; Oura, Takafumi; Kitakawa, Masanori; Koshina,
Shigeru (Matsushita Electric Industrial Co., Ltd., Japan). Jpn.
Kokai Tokkyo Koho JP 2000040499 A2 20000208, 5 pp. (Japanese).
CODEN: JKXXAF. APPLICATION: JP 1998-207430 19980723.

AB The **Li batteries** have a separator between a

SrCO₃ on separator.

cathode and an **anode**, where the separator is a porous polyolefin membrane, and has metal carbonate or metal oxide particles fixed on its surface facing the **cathode** and/or **anode**. The carbonate is CaCO_3 , MgCO_3 , BaCO_3 , or SrCO_3 ; the oxide is CaO , MgO , Al_2O_3 , or Co oxide; and the particles have diam. 2-30 μm .

IT 1633-05-2, Strontium carbonate
 (porous polyolefin separators contg. metal carbonate or metal oxide particles on surface for secondary **lithium batteries**)
 RN 1633-05-2 HCA
 CN Carbonic acid, strontium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



● Sr

IC ICM H01M002-16
 ICS H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST **lithium battery** porous polyolefin separator;
 carbonate particle polyolefin separator **lithium battery**; oxide particle polyolefin separator **lithium battery**
 IT Secondary **battery** separators
 (porous polyolefin separators contg. metal carbonate or metal oxide particles on surface for secondary **lithium batteries**)
 IT Polyolefins
 (porous polyolefin separators contg. metal carbonate or metal oxide particles on surface for secondary **lithium batteries**)
 IT 9002-88-4, Polyethylene
 (porous polyolefin separators contg. metal carbonate or metal oxide particles on surface for secondary **lithium batteries**)
 IT 471-34-1, Calcium carbonate, uses 513-77-9, Barium carbonate
 546-93-0, Magnesium carbonate 1305-78-8, Calcium oxide, uses
 1309-48-4, Magnesium oxide, uses 1344-28-1, Aluminum oxide, uses
 1633-05-2, Strontium carbonate 11104-61-3, Cobalt oxide
 (porous polyolefin separators contg. metal carbonate or metal oxide particles on surface for secondary **lithium batteries**)

L145 ANSWER 6 OF 19 HCA COPYRIGHT 2005 ACS on STN No
130:198814 **Electrode** active materials for **lithium**
ion secondary **battery**. Miyasaka, Tsutomu (Fuji Photo Film
Co., Ltd., Japan). U.S. US 5882821 A **19990316**, 13 pp.
(English). CODEN: USXXAM. APPLICATION: US 1997-805058 19970224.
PRIORITY: JP 1996-62124 19960223; JP 1996-39564 19960227; JP
1996-335113 19961129.

AB In a **lithium** ion secondary **battery** having a
cathode, an **anode**, a **nonaq.** electrolyte,
and a container sealing the **electrodes** and electrolyte
therein, the **cathode** is formed of a **cathode**
active material which is produced by electrochem. intercalating a
lithium ion into a **lithium** manganese-metal complex
oxide in the container to give a **cathode** active material
precursor comprising a **lithium** manganese-metal complex
oxide of which **lithium** ion content is increased. The
anode is formed of an **anode** active material which
is produced by intercalating the released **lithium** ion into
an **anode** active material precursor of a metal oxide in the
container.

IT **12136-45-7P**, Potassium oxide, uses
(glass; **electrode** active materials for **lithium**
ion secondary **battery**)

RN 12136-45-7 HCA

CN Potassium oxide (K2O) (8CI, 9CI) (CA INDEX NAME)

K-O-K

IC ICM H01M004-50

INCL 429224000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **lithium** ion **battery anode**
cathode prepn

IT Phosphate glasses
(borophosphate; **electrode** active materials for
lithium ion secondary **battery**)

IT Intercalation
(electrochem.; **electrode** active materials for
lithium ion secondary **battery**)

IT **Battery anodes**
Battery cathodes
(**electrode** active materials for **lithium** ion
secondary **battery**)

IT Phosphate glasses
(**electrode** active materials for **lithium** ion
secondary **battery**)

- IT Secondary **batteries**
 (lithium; electrode active materials for
 lithium ion secondary battery)
- IT 195967-30-7P, Lithium manganese sodium oxide
 Li1.02Mn1.95Na0.05O4 220830-65-9P, Cobalt lithium
 manganese oxide (Co0.02Li1.02Mn1.95O4.2) 220830-68-2P, Iron
 lithium manganese oxide (Fe0.02Li1.02Mn1.95O4.2)
 220830-71-7P, Chromium lithium manganese oxide
 (Cr0.02Li1.02Mn1.95O4.2) 220830-72-8P, Copper lithium
 manganese oxide (Cu0.02Li1.02Mn1.95O4.2) 220830-74-0P, Aluminum
 lithium manganese oxide (Al0.02Li1.02Mn1.95O4.2)
 220830-75-1P, Lithium magnesium manganese oxide
 (Li1.02Mg0.03Mn1.95O4.1) 220830-77-3P, Lithium manganese
 sodium oxide (Li1.02Mn1.95Na0.02O4.1)
 (electrode active materials for lithium ion
 secondary battery)
- IT 1332-29-2P, Tin oxide 12136-45-7P, Potassium oxide, uses
 (glass; electrode active materials for lithium
 ion secondary battery)

- L145 ANSWER (7) OF 19 HCA COPYRIGHT 2005 ACS on STN No
 130:156087 Secondary **nonaqueous** electrolyte **batteries**
 . Ozaki, Yoshiyuki; Muraoka, Norishige; Kobayashi, Shigeo
 (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai
 Tokkyo Koho JP 11054154 A2 19990226 Heisei, 6 pp.
 (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-205664 19970731.
- AB The **batteries** have Li contg. transition metal
 oxide **cathodes**, Li **anodes**,
nonaq. electrolytes, and a powd. or molded oxide, e.g.,
SrO, CaO, BaO, and/or MgO, not in direct contact with the
electrodes or electrolyte for reacting with CO₂ inside the
battery. Preferably, the oxide is added at 0.04-0.2 mmol/g
cathode active mass.
- IT 1314-11-0, Strontium oxide, uses
 (lithium **batteries** contg. cobalt
 lithium nickel oxide **cathodes** and alk. earth
 oxide for absorbing carbon dioxide)
- RN 1314-11-0 HCA
 CN Strontium oxide (SrO) (6CI, 8CI, 9CI) (CA INDEX NAME)

O=Sr

- IC ICM H01M010-40
 ICS H01M004-02; H01M004-58
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST **lithium battery** carbon dioxide absorbent;
 strontium oxide carbon dioxide absorbent **battery**; calcium

oxide carbon dioxide absorbent **battery**; barium oxide
carbon dioxide absorbent **battery**; magnesium oxide carbon
dioxide absorbent **battery**

IT Secondary **batteries**

(**lithium**; **lithium batteries** contg.
cobalt **lithium** nickel oxide **cathodes** and alk.
earth oxide for absorbing carbon dioxide)

IT 113066-89-0, Cobalt **lithium** nickel oxide (Co_{0.2}LiNi_{0.8}O₂)

(**lithium batteries** contg. cobalt
lithium nickel oxide **cathodes** and alk. earth
oxide for absorbing carbon dioxide)

IT 1304-28-5, Barium oxide, uses 1305-78-8, Calcia, uses 1309-48-4,
Magnesia, uses **1314-11-0**, Strontium oxide, uses

(**lithium batteries** contg. cobalt
lithium nickel oxide **cathodes** and alk. earth
oxide for absorbing carbon dioxide)

L145 ANSWER (8) OF 19 HCA COPYRIGHT 2005 ACS on STN

130:40951 High-temperature stable secondary **nonaqueous**

-electrolyte **battery** and its manufacture. Murata,

Toshihide; Bito, Yasuhiko; Ito, Shuji; Toyoguchi, Yoshinori; Sato,
Toshitada (Matsushita Electric Industrial Co., Ltd., Japan). Eur.

Pat. Appl. EP 883200 A2 **19981209**, 32 pp. DESIGNATED

STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW.

APPLICATION: EP 1998-110363 19980605. PRIORITY: JP 1997-149121
19970606; JP 1997-289426 19971022.

AB The **battery** includes a substance which produces either H₂O
or CO₂ with an increase in temp., i.e., at 60-300 or 80-300.degree.,
resp. The substance is included in the **battery**
cathode or **anode** at 0.5-20 wt. parts/100 wt. parts
of the active material of the corresponding **electrode**.

Examples of the substance which produces H₂O include hydroxides and
compds. having H₂O of crystn. Examples of the substance which
produces gaseous CO₂ include carbonates and hydrogen carbonates.

IT **144-55-8**, Sodium bicarbonate, uses

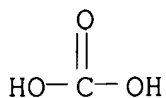
(in high-temp. stable secondary **nonaq.**-electrolyte
batteries)

RN 144-55-8 HCA

CN Carbonic acid monosodium salt (8CI, 9CI) (CA INDEX NAME)

relevant print out.
NaHCO₃

6150053



● Na

IC ICM H01M004-62
ICS H01M010-40; H01M004-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery nonaq** electrolyte high temp stable;
water formation **nonaq** electrolyte **battery**;
carbon dioxide formation **nonaq** electrolyte **battery**

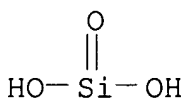
IT Secondary **batteries**
(**lithium**, **lithium-ion**; high-temp. stable
nonaq.-electrolyte)

IT 124-38-9P, Carbon dioxide, preparation 7732-18-5P, Water,
preparation
(high-temp. stable secondary **nonaq.**-electrolyte
batteries contg. substance producing)

IT 139-12-8, Aluminum acetate **144-55-8**, Sodium bicarbonate,
uses 298-14-6, Potassium bicarbonate 373-02-4, Nickel acetate
471-34-1, Calcium carbonate, uses 497-19-8, Carbonic acid disodium
salt, uses 513-77-9 546-93-0, Magnesium carbonate 563-71-3,
Iron carbonate (FeCO₃) 584-08-7 584-09-8, Rubidium carbonate
814-87-9, Aluminum oxalate 917-69-1, Cobalt acetate 1305-62-0,
Calcium hydroxide, uses 1308-04-9, Cobalt oxide (Co₂O₃)
1309-42-8, Magnesium hydroxide 1313-99-1, Nickel oxide (NiO), uses
1344-28-1, Alumina, uses 3333-67-3, Nickel carbonate (NiCO₃)
3486-35-9, Zinc carbonate 7446-70-0, Aluminum chloride, uses
7542-09-8, Cobalt carbonate 7784-30-7, Aluminum phosphate
7786-81-4, Nickel sulfate 10043-01-3, Aluminum sulfate
10043-35-3, Boric acid, uses 10101-41-4, Calcium sulfate dihydrate
10294-50-5, Cobalt phosphate octahydrate 10381-36-9, Nickel
phosphate 12026-04-9, Nickel hydroxide oxide (Ni(OH)O)
12026-24-3, Tin hydroxide (Sn(OH)₂) 12054-48-7, Nickel hydroxide
(Ni(OH)₂) 12134-11-1, Chromium hydroxide (Cr(OH)₂) 12233-29-3
12534-24-6 13138-45-9, Nickel nitrate 13455-31-7, Cobalt
perchlorate 13455-36-2, Cobalt phosphate 13637-71-3, Nickel
perchlorate 14475-63-9, Zirconium hydroxide 15519-28-5, Cesium
bicarbonate 18933-05-6, Manganese hydroxide (Mn(OH)₂)
19088-74-5, Rubidium bicarbonate 20338-08-3 20344-49-4, Iron
hydroxide oxide (Fe(OH)O) 20427-58-1, Zinc hydroxide 21041-93-0,
Cobalt hydroxide (Co(OH)₂) 21041-95-2, Cadmium hydroxide
21645-51-2, Aluminum hydroxide, uses 34053-87-7, Barium nitrate

monohydrate 67092-84-6 134761-87-8, Cobalt oxalate
(in high-temp. stable secondary **nonaq.**-electrolyte
batteries)

L145 ANSWER (9) OF 19 HCA COPYRIGHT 2005 ACS on STN Na_2SiO_3 relevant
130:40925 Secondary **nonaqueous**-electrolyte **battery** print out.
(6423448) and its **anode**. Sato, Toshitada; Bito, Yasuhiko; Murata,
(worse date) Toshihide; Ito, Shuji; Matsuda, Hiromu; Toyoguchi, Yoshinori
(Matsushita Electric Industrial Co., Ltd., Japan). Eur. Pat. Appl.
EP 880187 A2 **19981125**, 37 pp. DESIGNATED STATES: R: AT,
BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI,
LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP
1998-109095 19980519. PRIORITY: JP 1997-132298 19970522.
AB An **anode** active material of a long-life title
battery with high energy d. and showing excellent cycle life
comprises LiPZqXr , where Z represents .gtoreq.2 elements selected
from the group of metals and semimetals .gtoreq.1 of which is
selected from Na, K, Rb, Cs, Mg, Ca, Sr, Ba, Sc, Y, La, Ce, Ti, Zr,
Hf, V, Nb, Ta, Cr, Mo, W, Mn, Fe, Co, Ni, Cu, Ag, Zn, Cd and Pd; X
is .gtoreq.1 element selected from O, S, Se and Te; $0 < (p + q + r)$
.ltoreq.25; $p < 10$, $0 < q < 10$; and $0 < r$.ltoreq.8.
IT **6834-92-0**, Sodium silicate (**Na_2SiO_3**)
(**anode** in high-performance **nonaq.**-electrolyte
batteries)
RN 6834-92-0 HCA
CN Silicic acid (H_2SiO_3), disodium salt (8CI, 9CI) (CA INDEX NAME)



● 2 Na

IC ICM H01M004-48
ICS H01M004-58
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery nonaq** electrolyte complex oxide
anode; sulfide complex **nonaq** electrolyte
battery anode; telluride complex **nonaq**
electrolyte **battery anode**; selenide complex
nonaq electrolyte **battery anode**
IT **Battery anodes**
(complex oxide and selenide and sulfide and telluride
nonaq.-electrolyte)
IT 1302-42-7 **6834-92-0**, Sodium silicate (**Na_2SiO_3**)

10006-28-7, Potassium silicate (K_2SiO_3) 10101-39-0 11071-64-0
11073-75-9 11078-41-4, Aluminum strontium sulfide (Al_2SrS_4)
11078-42-5, Aluminum strontium selenide (Al_2SrSe_4) 11080-70-9,
Gallium strontium selenide (Ga_2SrSe_4) 11094-01-2 12003-63-3
12004-04-5, Aluminum barium oxide (Al_2BaO_4) 12004-37-4, Aluminum
strontium oxide (Al_2SrO_4) 12009-18-6, Barium tin oxide ($BaSnO_3$)
12009-46-0, Barium germanium oxide (Ba_2GeO_4) 12013-41-1, Calcium
indium oxide ($CaIn_2O_4$) 12013-46-6, Calcium tin oxide ($CaSnO_3$)
12013-64-8, Calcium germanium oxide (Ca_2GeO_4) 12013-65-9
12014-04-9, Cadmium indium oxide ($CdIn_2O_4$) 12014-05-0, Cadmium
indium selenide ($CdIn_2Se_4$) 12014-13-0, Cadmium tin oxide ($CdSnO_3$).
12025-13-7, Germanium magnesium oxide ($GeMg_2O_4$) 12025-14-8
12025-20-6, Germanium sodium oxide ($GeNa_4O_4$) 12025-28-4, Germanium
rubidium oxide ($GeRb_4O_4$) 12025-29-5, Germanium zinc oxide
($GeZn_2O_4$) 12030-23-8, Indium strontium oxide (In_2SrO_4)
12030-26-1, Indium zinc selenide (In_2ZnSe_4) 12030-28-3, Indium
zinc telluride (In_2ZnTe_4) 12030-96-5 12032-29-0 12034-31-0
12042-68-1 12047-12-0, Barium gallium oxide ($BaGa_2O_4$) 12047-25-5
12056-00-7, Indium magnesium oxide (In_2MgO_4) 12056-03-0, Indium
zinc oxide (In_2ZnO_4) 12056-05-2, Indium zinc sulfide (In_2ZnS_4)
12058-66-1 12058-76-3 12063-93-3 12064-13-0, Gallium magnesium
oxide (Ga_2MgO_4) 12064-18-5, Gallium zinc oxide (Ga_2ZnO_4)
12064-22-1, Gallium zinc sulfide (Ga_2ZnS_4) 12065-00-8
12068-51-8, Aluminum magnesium oxide (Al_2MgO_4) 12068-53-0,
Aluminum zinc oxide (Al_2ZnO_4) 12138-48-6 12139-12-7, Cadmium
gallium oxide ($CdGa_2O_4$) 12139-26-3, Cadmium germanium oxide
(Cd_2GeO_4) 12140-76-0, Germanium strontium oxide ($GeSr_2O_4$)
12140-79-3 12142-31-3 12142-33-5 12143-34-9, Strontium tin
oxide ($SrSnO_3$) 12180-94-8, Calcium gallium oxide ($CaGa_2O_4$)
12196-48-4 12196-51-9, Indium sodium sulfide ($InNaS_2$) 12201-47-7
12202-06-1, Strontium zinc oxide ($SrZnO_2$) 12208-83-2 12218-60-9,
Germanium zinc sulfide ($GeZn_2S_4$) 12230-87-4, Barium zinc oxide
($BaZnO_2$) 12231-00-4 12231-04-8 12231-35-5 12232-99-4,
Bismuth sodium oxide ($BiNaO_3$) 12252-16-3, Aluminum cadmium oxide
(Al_2CdO_4) 12271-58-8, Aluminum zinc sulfide (Al_2ZnS_4)
12298-00-9, Gallium magnesium sulfide (Ga_2MgS_4) 12306-02-4
12315-16-1, Gallium strontium oxide (Ga_2SrO_4) 12359-71-6, Aluminum
cadmium selenide (Al_2CdSe_4) 12359-83-0, Aluminum zinc selenide
(Al_2ZnSe_4) 12370-60-4, Barium cadmium oxide ($BaCdO_2$) 12370-89-7,
Cadmium gallium selenide ($CdGa_2Se_4$) 12370-92-2 12382-62-6,
Gallium zinc selenide (Ga_2ZnSe_4) 12396-71-3 12421-31-7, Aluminum
cadmium telluride (Al_2CdTe_4) 12421-34-0, Aluminum zinc telluride
(Al_2ZnTe_4) 12422-10-5, Cadmium gallium telluride ($CdGa_2Te_4$)
12422-92-3, Gallium zinc telluride (Ga_2ZnTe_4) 12432-08-5
12432-10-9 12437-38-6 12439-80-4 12439-82-6, Lead zinc oxide
($PbZnO_3$) 12442-30-7, Cadmium zinc selenide ($CdZnSe_2$) 12500-06-0
12534-19-9 12534-22-4 12589-46-7 12589-75-2 12590-00-0
12592-70-0, Gallium strontium sulfide (Ga_2SrS_4) 12775-70-1,

Cadmium lead oxide (CdPbO_3) 13255-26-0, Barium silicate (BaSiO_3)
 13451-00-8 13477-19-5 13776-74-4 15123-62-3 17374-67-3
 19299-00-4 39297-18-2 39297-20-6, Aluminum strontium telluride
 (Al_2SrTe_4) 39297-27-3 39297-28-4 39297-65-9, Gallium strontium
 telluride (Ga_2SrTe_4) 39297-73-9 39297-74-0 39297-75-1, Indium
 strontium telluride (In_2SrTe_4) 39466-56-3, Cadmium zinc sulfide
 (CdZnS_2) 50864-25-0 51403-77-1 51403-85-1 51403-86-2
 51403-87-3 51404-02-5 51404-22-9 51404-23-0 51680-91-2
 51882-20-3 51913-20-3 56831-86-8, Aluminum magnesium telluride
 (Al_2MgTe_4) 56832-17-8 56832-18-9, Indium magnesium telluride
 (In_2MgTe_4) 58499-92-6 58500-08-6 58500-11-1 58500-59-7
 59087-51-3, Cadmium zinc oxide (CdZnO_2) 60874-08-0, Barium indium
 oxide (BaIn_2O_4) 60935-89-9 60968-55-0, Cadmium germanium
 selenide (Cd_2GeSe_4) 60969-07-5 61029-03-6, Germanium zinc
 selenide (GeZn_2Se_4) 61036-15-5, Aluminum magnesium selenide
 (Al_2MgSe_4) 61036-25-7 61216-36-2, Aluminum sodium selenide
 (AlNaSe_2) 61216-37-3 61216-42-0 61216-43-1 61216-45-3
 61216-53-3 61231-60-5 61497-89-0 63018-05-3, Rubidium zinc
 oxide (Rb_2ZnO_2) 67740-18-5 67847-61-4, Aluminum calcium selenide
 (Al_2CaSe_4) 75718-99-9, Barium cadmium germanium sulfide (BaCdGeS_4)
 79470-80-7, Aluminum barium selenide (Al_2BaSe_4) 86567-81-9,
 Aluminum calcium sulfide (Al_2CaS_4) 91698-66-7, Barium lead
 silicate ($\text{BaPb}(\text{SiO}_4)$) 99807-78-0 100736-82-1 107385-82-0
 111569-12-1, Cadmium zinc telluride ($\text{Cd}_{0.5}\text{Zn}_{0.5}\text{Te}$) 118391-36-9,
 Gallium magnesium selenide (Ga_2MgSe_4) 121458-95-5 124358-93-6,
 Strontium zinc sulfide (SrZnS_2) 129292-43-9, Bismuth strontium
 oxide (Bi_2SrO_6) 133494-86-7, Cadmium calcium oxide (CdCaO_2)
 142747-83-9, Bismuth zinc oxide (Bi_2ZnO_6) 143310-91-2, Barium lead
 strontium oxide ($\text{Ba}_{0.5}\text{PbSr}_{0.5}\text{O}_3$) 146290-10-0, Magnesium zinc
 telluride ($\text{Mg}_{0.5}\text{Zn}_{0.5}\text{Te}$) 151751-03-0, Potassium tin selenide
 (K_2SnSe_3) 155629-04-2, Magnesium zinc selenide ($\text{Mg}_{0.5}\text{Zn}_{0.5}\text{Se}$)
 155629-05-3, Magnesium zinc sulfide ($\text{Mg}_{0.5}\text{Zn}_{0.5}\text{S}$) 159460-69-2,
 Cadmium magnesium telluride ($\text{Cd}_{0.5}\text{Mg}_{0.5}\text{Te}$) 164465-85-4, Strontium
 zinc selenide ($\text{Sr}_{0.5}\text{Zn}_{0.5}\text{Se}$) 171067-34-8, Aluminum potassium
 sulfide (AlKS_2) 174818-45-2, Cadmium indium telluride (CdInTe_4)
 178426-93-2, Calcium zinc oxide ($\text{Ca}_{0.5}\text{Zn}_{0.5}\text{O}$) 193340-54-4, Bismuth
 magnesium oxide (Bi_2MgO_6) 203737-11-5, Bismuth rubidium oxide
 (BiRbO_3) 215172-96-6, Magnesium zinc oxide (MgZnO_2) 216597-81-8,
 Cadmium magnesium oxide (CdMgO_2) 216597-84-1, Bismuth calcium
 oxide (Bi_2CaO_6) 216597-86-3, Cadmium strontium oxide (CdSrO_2)
 216597-92-1, Barium bismuth oxide (BaBi_2O_6) 216597-96-5, Barium
 strontium tin oxide ($\text{Ba}_{0.5}\text{Sr}_{0.5}\text{SnO}_3$) 216597-97-6, Barium strontium
 tin oxide ($\text{Ba}_{0.7}\text{Sr}_{0.3}\text{SnO}_3$) 216597-98-7, Barium strontium tin oxide
 ($\text{Ba}_{0.9}\text{Sr}_{0.1}\text{SnO}_3$) 216597-99-8, Barium calcium tin oxide
 ($\text{Ba}_{0.5}\text{Ca}_{0.5}\text{SnO}_3$) 216598-00-4, Barium magnesium tin oxide
 ($\text{Ba}_{0.5}\text{Mg}_{0.5}\text{SnO}_3$) 216598-01-5, Indium rubidium oxide (InRbO_2)
 216598-03-7, Aluminum strontium tin oxide ($\text{Al}_2\text{SrSnO}_5$) 216598-04-8,
 Aluminum strontium oxide silicate ($\text{Al}_2\text{SrO}(\text{SiO}_4)$) 216598-05-9,

Aluminum lead strontium oxide ($\text{Al}_2\text{PbSrO}_5$) 216598-06-0, Aluminum cadmium strontium oxide ($\text{Al}_2\text{CdSrO}_4$) 216598-07-1, Aluminum bismuth strontium oxide (AlBiSrO_4) 216598-08-2, Aluminum indium strontium oxide (AlInSrO_3) 216598-09-3, Aluminum strontium zinc oxide ($\text{Al}_2\text{SrZnO}_4$) 216598-10-6, Aluminum gallium strontium oxide (AlGaSrO_3) 216598-11-7, Aluminum germanium strontium oxide ($\text{Al}_2\text{GeSrO}_4$) 216598-12-8 216598-13-9, Lead strontium tin oxide (PbSrSnO_4) 216598-14-0, Cadmium strontium tin oxide (CdSrSnO_3) 216598-15-1, Bismuth strontium tin oxide ($\text{Bi}_2\text{SrSnO}_7$) 216598-16-2, Indium strontium tin oxide ($\text{In}_2\text{SrSnO}_5$) 216598-17-3, Strontium tin zinc oxide (SrSnZnO_3) 216598-18-4, Gallium strontium tin oxide ($\text{Ga}_2\text{SrSnO}_5$) 216598-19-5, Germanium strontium tin oxide ($\text{GeSrSn}_2\text{O}_4$) 216598-20-8, Aluminum barium oxide silicate ($\text{Al}_2\text{BaO}(\text{SiO}_4)$) 216598-21-9 216598-23-1, Barium cadmium silicate ($\text{BaCd}(\text{SiO}_3)$) 216598-24-2, Barium bismuth oxide silicate ($\text{BaBi}_2\text{O}_3(\text{SiO}_4)$) 216598-25-3, Barium indium oxide silicate ($\text{BaIn}_2\text{O}(\text{SiO}_4)$) 216598-26-4, Barium zinc silicate ($\text{BaZn}(\text{SiO}_3)$) 216598-27-5, Barium gallium oxide silicate ($\text{BaGa}_2\text{O}(\text{SiO}_4)$) 216598-28-6, Barium germanium oxide silicide ($\text{BaGeO}_4\text{Si}_2$) 216598-29-7, Aluminum barium lead oxide ($\text{Al}_2\text{BaPbO}_5$) 216598-30-0, Barium lead tin oxide (BaPbSnO_4) 216598-31-1, Barium cadmium lead oxide (BaCdPbO_3) 216598-32-2, Barium bismuth lead oxide ($\text{BaBi}_2\text{PbO}_7$) 216598-33-3, Barium indium lead oxide ($\text{BaIn}_2\text{PbO}_5$) 216598-34-4, Barium lead zinc oxide (BaPbZnO_3) 216598-35-5, Barium gallium lead oxide ($\text{BaGa}_2\text{PbO}_5$) 216598-36-6, Barium germanium lead oxide ($\text{BaGePb}_2\text{O}_4$) 216598-37-7, Bismuth cadmium oxide (BiCdO_4) 216598-38-8, Aluminum barium bismuth oxide (AlBaBiO_4) 216598-39-9, Barium bismuth tin oxide ($\text{BaBi}_2\text{SnO}_7$) 216598-40-2, Barium bismuth cadmium oxide ($\text{BaBi}_2\text{CdO}_6$) 216598-41-3, Barium bismuth indium oxide (BaBiInO_4) 216598-42-4, Barium bismuth zinc oxide ($\text{BaBi}_2\text{ZnO}_6$) 216598-43-5, Barium bismuth gallium oxide (BaBiGaO_4) 216598-44-6, Barium bismuth germanium oxide ($\text{BaBi}_2\text{GeO}_4$) 216598-45-7, Indium strontium oxide silicate ($\text{In}_2\text{SrO}(\text{SiO}_4)$) 216598-46-8, Indium lead strontium oxide ($\text{In}_2\text{PbSrO}_5$) 216598-47-9, Cadmium indium strontium oxide ($\text{CdIn}_2\text{SrO}_4$) 216598-48-0, Bismuth indium strontium oxide (BiInSrO_4) 216598-49-1, Indium strontium zinc oxide ($\text{In}_2\text{SrZnO}_4$) 216598-50-4, Gallium indium strontium oxide (GaInSrO_3) 216598-51-5, Germanium indium strontium oxide ($\text{GeIn}_2\text{SrO}_4$) 216598-52-6, Tin zinc oxide (SnZnO_4) 216598-53-7, Aluminum gallium magnesium oxide (AlGaMgO_3) 216598-54-8, Gallium magnesium tin oxide ($\text{Ga}_2\text{MgSnO}_5$) 216598-55-9, Gallium magnesium oxide silicate ($\text{Ga}_2\text{MgO}_3(\text{SiO}_4)$)

(**anode** in high-performance **nonaq.**-electrolyte **batteries**)

IT 216598-56-0, Gallium lead magnesium oxide ($\text{Ga}_2\text{PbMgO}_5$) 216598-57-1, Cadmium gallium magnesium oxide ($\text{CdGa}_2\text{MgO}_4$) 216598-58-2, Bismuth gallium magnesium oxide (BiGaMgO_4) 216598-59-3, Gallium indium magnesium oxide (GaInMgO_3) 216598-60-6, Gallium magnesium zinc oxide ($\text{Ga}_2\text{MgZnO}_4$) 216598-61-7, Gallium germanium magnesium oxide

(Ga₂GeMgO₄) 216598-62-8, Aluminum germanium magnesium oxide
 (Al₂GeMgO₅) 216598-63-9, Germanium magnesium tin oxide (GeMgSnO₄)
 216598-64-0 216598-65-1, Germanium lead magnesium oxide (GePbMgO₄)
 216598-66-2, Cadmium germanium magnesium oxide (CdGeMgO₃)
 216598-67-3, Bismuth germanium magnesium oxide (Bi₂GeMgO₇)
 216598-68-4, Germanium indium magnesium oxide (GeIn₂MgO₅)
 216598-69-5, Germanium magnesium zinc oxide (GeMgZnO₃)
 216598-70-8, Gallium germanium magnesium oxide (Ga₂GeMgO₅)
 216598-71-9, Lead magnesium sulfide (PbMgS₃) 216598-72-0, Cadmium
 magnesium sulfide (CdMgS₂) 216598-73-1, Bismuth magnesium sulfide
 (Bi₂MgS₆) 216598-74-2, Calcium lead sulfide (CaPbS₃)
 216598-75-3, Cadmium calcium sulfide (CdCaS₂) 216598-76-4, Bismuth
 calcium sulfide (Bi₂CaS₆) 216598-77-5 216598-78-6, Lead
 strontium sulfide (PbSrS₃) 216598-79-7, Cadmium strontium sulfide
 (CdSrS₂) 216598-80-0, Bismuth strontium sulfide (Bi₂SrS₆)
 216598-81-1 216598-82-2, Barium lead sulfide (BaPbS₃)
 216598-83-3, Barium bismuth sulfide (BaBi₂S₆) 216598-84-4, Barium
 strontium tin sulfide (Ba_{0.5}Sr_{0.5}SnS₃) 216598-85-5, Barium
 strontium tin sulfide (Ba_{0.7}Sr_{0.3}SnS₃) 216598-86-6, Barium
 strontium tin sulfide (Ba_{0.9}Sr_{0.1}SnS₃) 216598-87-7, Barium calcium
 tin sulfide (Ba_{0.5}Ca_{0.5}SnS₃) 216598-88-8, Barium magnesium tin
 sulfide (Ba_{0.5}Mg_{0.5}SnS₃) 216598-89-9 216598-90-2, Barium lead
 strontium sulfide (Ba_{0.5}PbSr_{0.5}S₃) 216598-91-3, Aluminum sodium
 sulfide (AlNaS₂) 216598-92-4, Lead sodium sulfide (PbNa₂S₃)
 216598-93-5, Bismuth sodium sulfide (BiNaS₃) 216598-94-6
 216598-95-7, Lead potassium sulfide (PbK₂S₃) 216598-96-8, Cadmium
 potassium sulfide (CdK₂S₂) 216598-97-9, Bismuth potassium sulfide
 (BiKS₃) 216598-98-0, Potassium zinc sulfide (K₂ZnS₂)
 216598-99-1, Gallium potassium sulfide (GaKS₂) 216599-00-7,
 Germanium potassium sulfide (GeK₄S₄) 216599-01-8, Aluminum sodium
 tin sulfide (Al₂Na₂SnS₅) 216599-02-9, Aluminum sodium sulfide
 thiosilicate (Al₂Na₂S(SiS₄)) 216599-03-0, Aluminum lead sodium
 sulfide (Al₂PbNa₂S₅) 216599-04-1, Aluminum cadmium sodium sulfide
 (Al₂CdNa₂S₄) 216599-05-2, Aluminum bismuth sodium sulfide
 (AlBiNa₂S₄) 216599-06-3, Aluminum indium sodium sulfide
 (AlInNa₂S₃) 216599-07-4, Aluminum sodium zinc sulfide (Al₂Na₂ZnS₄)
 216599-08-5, Aluminum gallium sodium sulfide (AlGaNa₂S₃)
 216599-09-6, Aluminum germanium sodium sulfide (Al₂GeNa₂S₄)
 216599-10-9, Aluminum strontium tin sulfide (Al₃SrSnS₅)
 216599-11-0 216599-12-1, Lead strontium tin sulfide (PbSrSnS₄)
 216599-13-2, Cadmium strontium tin sulfide (CdSrSnS₃) 216599-14-3,
 Bismuth strontium tin sulfide (Bi₂SrSnS₇) 216599-15-4, Indium
 strontium tin sulfide (In₂SrSnS₅) 216599-16-5, Strontium tin zinc
 sulfide (SrSnZnS₃) 216599-17-6, Gallium strontium tin sulfide
 (Ga₂SrSnS₅) 216599-18-7, Germanium strontium tin sulfide
 (GeSrSn₂S₄) 216599-19-8, Aluminum barium sulfide thiosilicate
 (Al₂BaS(SiS₄)) 216599-20-1 216599-21-2 216599-22-3, Barium
 cadmium silicide sulfide (BaCdSiS₃) 216599-23-4, Barium bismuth

sulfide thiosilicate ($\text{BaBi}_2\text{S}_3(\text{SiS}_4)$) 216599-24-5, Barium indium
sulfide thiosilicate ($\text{BaIn}_2\text{S}(\text{SiS}_4)$) 216599-25-6, Barium zinc
silicide sulfide (BaZnSiS_3) 216599-26-7, Barium gallium sulfide
thiosilicate ($\text{BaGa}_2\text{S}(\text{SiS}_4)$) 216599-27-8, Barium germanium silicide
sulfide ($\text{BaGeSi}_2\text{S}_4$) 216599-28-9, Aluminum calcium lead sulfide
($\text{Al}_2\text{CaPbS}_5$) 216599-29-0, Calcium lead tin sulfide (CaPbSnS_4)
216599-30-3 216599-31-4, Cadmium calcium lead sulfide (CdCaPbS_3)
216599-32-5, Bismuth calcium lead sulfide ($\text{Bi}_2\text{CaPbS}_7$) 216599-33-6,
Calcium indium lead sulfide ($\text{CaIn}_2\text{PbS}_5$) 216599-34-7, Calcium lead
zinc sulfide (CaPbZnS_3) 216599-35-8, Calcium gallium lead sulfide
($\text{CaGa}_2\text{PbS}_5$) 216599-36-9, Calcium germanium lead sulfide
($\text{CaGePb}_2\text{S}_4$) 216599-37-0, Aluminum cadmium calcium sulfide
($\text{Al}_2\text{CdCaS}_4$) 216599-38-1, Cadmium calcium tin sulfide (CdCaSnS_3)
216599-39-2, Cadmium calcium silicide sulfide (CdCaSiS_3)
216599-40-5, Bismuth cadmium calcium sulfide (BiCdCaS_4)
216599-41-6, Cadmium calcium indium sulfide ($\text{CdCaIn}_2\text{S}_4$)
216599-42-7, Cadmium calcium zinc sulfide (CdCaZnS_2) 216599-43-8,
Cadmium calcium gallium sulfide ($\text{CdCaGa}_2\text{S}_5$) 216599-44-9, Cadmium
calcium germanium sulfide ($\text{Cd}_2\text{CaGeS}_5$) 216599-45-0, Aluminum
bismuth magnesium sulfide (AlBiMgS_5) 216599-46-1, Bismuth
magnesium tin sulfide ($\text{Bi}_2\text{MgSnS}_8$) 216599-47-2, Bismuth magnesium
sulfide thiosilicate ($\text{Bi}_2\text{MgS}_4(\text{SiS}_4)$) 216599-48-3, Bismuth lead
magnesium sulfide ($\text{Bi}_2\text{PbMgS}_8$) 216599-49-4, Bismuth cadmium
magnesium sulfide ($\text{Bi}_2\text{CdMgS}_7$) 216599-50-7, Bismuth indium
magnesium sulfide (BiInMgS_5) 216599-51-8, Bismuth magnesium zinc
sulfide ($\text{Bi}_2\text{MgZnS}_7$) 216599-52-9, Bismuth gallium magnesium sulfide
(BiGaMgS_5) 216599-53-0, Bismuth germanium magnesium sulfide
($\text{Bi}_2\text{GeMgS}_5$) 216599-54-1, Aluminum indium potassium sulfide
(AlInK_2S_4) 216599-55-2, Indium potassium tin sulfide ($\text{In}_2\text{K}_2\text{SnS}_6$)
216599-56-3, Indium potassium sulfide thiosilicate ($\text{In}_2\text{K}_2\text{S}_2(\text{SiS}_4)$)
216599-57-4, Indium lead potassium sulfide ($\text{In}_2\text{PbK}_2\text{S}_6$)
216599-58-5, Cadmium indium potassium sulfide ($\text{CdIn}_2\text{K}_2\text{S}_5$)
216599-59-6, Bismuth indium potassium sulfide (BiInK_2S_5)
216599-60-9, Indium potassium zinc sulfide ($\text{In}_2\text{K}_2\text{ZnS}_5$)
216599-61-0, Gallium indium potassium sulfide (GaInK_2S_4)
216599-62-1, Germanium indium potassium sulfide ($\text{GeIn}_2\text{K}_2\text{S}_5$)
216599-63-2, Tin zinc sulfide (SnZnS_4) 216599-64-3 216599-65-4,
Lead zinc sulfide (PbZnS_3) 216599-66-5, Bismuth zinc sulfide
(Bi_2ZnS_6) 216599-67-6, Aluminum gallium strontium sulfide
(AlGaSrS_4) 216599-68-7, Gallium strontium tin sulfide ($\text{Ga}_2\text{SrSnS}_6$)
216599-69-8, Gallium strontium sulfide thiosilicate ($\text{Ga}_2\text{SrS}_4(\text{SiS}_4)$)
216599-70-1, Gallium lead strontium sulfide ($\text{Ga}_2\text{PbSrS}_6$)
216599-71-2, Cadmium gallium strontium sulfide ($\text{CdGa}_2\text{SrS}_5$)
216599-72-3, Bismuth gallium strontium sulfide (BiGaSrS_5)
216599-73-4, Gallium indium strontium sulfide (GaInSrS_4)
216599-74-5, Gallium strontium zinc sulfide ($\text{Ga}_2\text{SrZnS}_5$)
216599-75-6, Gallium germanium strontium sulfide ($\text{Ga}_2\text{GeSrS}_5$)
216599-76-7, Aluminum barium germanium sulfide ($\text{Al}_2\text{BaGeS}_6$)

216599-77-8, Barium germanium tin sulfide (BaGeSnS_5) 216599-78-9,
Barium germanium sulfide thiosilicate ($\text{BaGeS}(\text{SiS}_4)$) 216599-79-0,
Barium germanium lead sulfide (BaGePbS_5) 216599-80-3, Barium
bismuth germanium sulfide ($\text{BaBi}_2\text{GeS}_8$) 216599-81-4, Barium
germanium indium sulfide ($\text{BaGeIn}_2\text{S}_6$) 216599-82-5, Barium germanium
zinc sulfide (BaGeZnS_4) 216599-83-6, Barium gallium germanium
sulfide ($\text{BaGa}_2\text{GeS}_6$) 216599-84-7, Magnesium tin selenide (MgSnSe_3)
216599-85-8 216599-86-9, Lead magnesium selenide (PbMgSe_3)
216599-87-0, Cadmium magnesium selenide (CdMgSe_2) 216599-88-1,
Bismuth magnesium selenide (Bi_2MgSe_6) 216599-89-2, Germanium
magnesium selenide (GeMg_2Se_4) 216599-90-5, Calcium tin selenide
(CaSnSe_3) 216599-91-6 216599-92-7, Calcium lead selenide
(CaPbSe_3) 216599-93-8, Cadmium calcium selenide (CdCaSe_2)
216599-94-9, Bismuth calcium selenide (Bi_2CaSe_6) 216599-95-0,
Calcium indium selenide (CaIn_2Se_4) 216599-96-1, Calcium zinc
selenide (CaZnSe_2) 216599-97-2, Calcium germanium selenide
(Ca_2GeSe_4) 216599-99-4, Strontium tin selenide (SrSnSe_3)
216600-00-9 216600-01-0, Lead strontium selenide (PbSrSe_3)
216600-02-1, Cadmium strontium selenide (CdSrSe_2) 216600-03-2,
Bismuth strontium selenide (Bi_2SrSe_6) 216600-04-3, Germanium
strontium selenide (GeSr_2Se_4) 216600-05-4 216600-06-5, Barium
lead selenide (BaPbSe_3) 216600-07-6, Barium cadmium selenide
(BaCdSe_2) 216600-08-7, Barium bismuth selenide (BaBi_2Se_6)
216600-09-8, Barium zinc selenide (BaZnSe_2) 216600-10-1, Barium
germanium selenide (Ba_2GeSe_4) 216600-11-2, Barium strontium tin
selenide ($\text{Ba}_{0.5}\text{Sr}_{0.5}\text{SnSe}_3$) 216600-12-3, Barium strontium tin
selenide ($\text{Ba}_{0.9}\text{Sr}_{0.1}\text{SnSe}_3$) 216600-13-4, Barium calcium tin
selenide ($\text{Ba}_{0.5}\text{Ca}_{0.5}\text{SnSe}_3$) 216600-14-5, Barium magnesium tin
selenide ($\text{Ba}_{0.5}\text{Mg}_{0.5}\text{SnSe}_3$) 216600-15-6 216600-16-7, Barium lead
strontium selenide ($\text{Ba}_{0.5}\text{PbSr}_{0.5}\text{Se}_3$) 216600-17-8 216600-18-9,
Lead sodium selenide (PbNa_2Se_3) 216600-19-0, Cadmium sodium
selenide (CdNa_2Se_2) 216600-20-3, Bismuth sodium selenide (BiNaSe_3)
216600-21-4, Sodium zinc selenide (Na_2ZnSe_2) 216600-22-5, Gallium
sodium selenide (GaNaSe_2) 216600-23-6 216600-24-7, Lead
potassium selenide (PbK_2Se_3) 216600-25-8, Cadmium potassium
selenide (CdK_2Se_2) 216600-26-9, Bismuth potassium selenide
(BiKSe_3) 216600-27-0, Potassium zinc selenide (K_2ZnSe_2)
216600-28-1, Germanium potassium selenide (GeK_4Se_4) 216600-29-2
216600-30-5, Aluminum cadmium strontium selenide ($\text{Al}_2\text{CdSrSe}_5$)
216600-31-6, Aluminum bismuth strontium selenide (AlBiSrSe_5)
216600-32-7, Aluminum indium strontium selenide (AlInSrSe_4)
216600-33-8, Aluminum strontium zinc selenide ($\text{Al}_2\text{SrZnSe}_5$)
216600-34-9, Aluminum gallium strontium selenide (AlGaSrSe_4)
216600-35-0, Aluminum germanium strontium selenide ($\text{Al}_2\text{GeSrSe}_5$)
216600-36-1, Aluminum barium tin selenide ($\text{Al}_2\text{BaSnSe}_6$)
216600-37-2, Aluminum lead strontium selenide ($\text{Al}_2\text{PbSrSe}_6$)
216600-38-3, Barium tin selenide selenosilicate ($\text{BaSnSe}(\text{SiSe}_4)$)
216600-39-4, Barium lead tin selenide (BaPbSnSe_5) 216600-40-7,

Barium cadmium tin selenide (BaCdSnSe_4) 216600-41-8, Barium bismuth tin selenide ($\text{BaBi}_2\text{SnSe}_8$) 216600-42-9, Barium indium tin selenide ($\text{BaIn}_2\text{SnSe}_6$) 216600-43-0, Barium gallium tin selenide ($\text{BaGa}_2\text{SnSe}_6$) 216600-44-1, Barium germanium tin selenide ($\text{BaGeSn}_2\text{Se}_5$) 216600-45-2 216600-46-3, Potassium tin selenide selenosilicate ($\text{K}_2\text{SnSe}(\text{SiSe}_4)$) 216600-47-4, Lead potassium selenide selenosilicate ($\text{PbK}_2\text{Se}(\text{SiSe}_4)$) 216600-48-5, Barium tin zinc selenide (BaSnZnSe_4) 216600-49-6 216600-50-9 216600-51-0, Indium potassium selenide selenosilicate ($\text{In}_2\text{K}_2\text{Se}_2(\text{SiSe}_4)$) 216600-52-1 216600-53-2 216600-54-3, Germanium potassium selenide silicide ($\text{GeK}_2\text{Se}_5\text{Si}_2$) 216600-55-4, Aluminum lead magnesium selenide ($\text{Al}_2\text{PbMgSe}_6$) 216600-56-5, Lead magnesium tin selenide (PbMgSnSe_5) 216600-57-6, Lead magnesium selenide selenosilicate ($\text{PbMgSe}(\text{SiSe}_4)$) 216600-58-7, Cadmium lead magnesium selenide (CdPbMgSe_4) 216600-59-8, Bismuth lead magnesium selenide ($\text{Bi}_2\text{PbMgSe}_8$) 216600-60-1, Indium lead magnesium selenide ($\text{In}_2\text{PbMgSe}_6$) 216600-61-2, Lead magnesium zinc selenide (PbMgZnSe_4) 216600-62-3, Gallium lead magnesium selenide ($\text{Ga}_2\text{PbMgSe}_6$) 216600-63-4, Germanium lead magnesium selenide ($\text{GePb}_2\text{MgSe}_5$) 216600-64-5, Cadmium tin selenide (CdSnSe_3) 216600-65-6 216600-66-7, Cadmium lead selenide (CdPbSe_3) 216600-67-8, Bismuth cadmium selenide (BiCdSe_4) 216600-68-9, Aluminum bismuth calcium selenide (AlBiCaSe_5) 216600-69-0, Bismuth calcium tin selenide ($\text{Bi}_2\text{CaSnSe}_8$) 216600-70-3, Bismuth calcium selenide selenosilicate ($\text{Bi}_2\text{CaSe}_4(\text{SiSe}_4)$) 216600-71-4, Bismuth calcium lead selenide ($\text{Bi}_2\text{CaPbSe}_8$) 216600-72-5, Bismuth cadmium calcium selenide ($\text{Bi}_2\text{CdCaSe}_7$) 216600-73-6, Bismuth calcium indium selenide (BiCaInSe_5) 216600-74-7, Bismuth calcium zinc selenide ($\text{Bi}_2\text{CaZnSe}_7$) 216600-75-8, Bismuth calcium gallium selenide (BiCaGaSe_5) 216600-76-9, Bismuth calcium germanium selenide ($\text{Bi}_2\text{CaGeSe}_5$) 216600-77-0, Indium strontium tin selenide ($\text{In}_2\text{SrSnSe}_6$) 216600-78-1, Indium lead strontium selenide ($\text{In}_2\text{PbSrSe}_6$) 216600-79-2, Cadmium indium strontium selenide ($\text{CdIn}_2\text{SrSe}_5$) 216600-80-5, Bismuth indium strontium selenide (BiInSrSe_5) 216600-81-6, Indium strontium zinc selenide ($\text{In}_2\text{SrZnSe}_5$) 216600-82-7, Gallium indium strontium selenide (GaInSrSe_4) 216600-83-8, Germanium indium strontium selenide ($\text{GeIn}_2\text{SrSe}_5$) 216600-84-9, Tin zinc selenide (SnZnSe_4) 216600-85-0 216600-86-1, Lead zinc selenide (PbZnSe_3) 216600-87-2, Bismuth zinc selenide (Bi_2ZnSe_6) 216600-88-3, Aluminum gallium magnesium selenide (AlGaMgSe_4) 216600-89-4, Gallium magnesium tin selenide ($\text{Ga}_2\text{MgSnSe}_6$) 216600-90-7 216600-91-8, Cadmium gallium magnesium selenide ($\text{CdGa}_2\text{MgSe}_5$) 216600-92-9, Bismuth gallium magnesium selenide (BiGaMgSe_5) 216600-93-0, Gallium indium magnesium selenide (GaInMgSe_4) 216600-94-1, Gallium magnesium zinc selenide ($\text{Ga}_2\text{MgZnSe}_5$) 216600-95-2, Gallium germanium magnesium selenide ($\text{Ga}_2\text{GeMgSe}_5$) 216600-96-3, Aluminum germanium strontium selenide ($\text{Al}_2\text{GeSrSe}_6$)

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IT 216600-97-4, Germanium strontium tin selenide (GeSrSnSe5)
 216600-98-5 216600-99-6, Germanium lead strontium selenide
 (GePbSrSe5) 216601-00-2, Cadmium germanium strontium selenide
 (CdGeSrSe4) 216601-01-3, Bismuth germanium strontium selenide
 (Bi2GeSrSe8) 216601-02-4, Germanium indium strontium selenide
 (GeIn2SrSe6) 216601-03-5, Germanium strontium zinc selenide
 (GeSrZnSe4) 216601-04-6, Gallium germanium strontium selenide
 (Ga2GeSrSe6) 216601-05-7, Magnesium tin telluride (MgSnTe3)
 216601-06-8, Lead magnesium telluride (PbMgTe3) 216601-07-9,
 Bismuth magnesium telluride (Bi2MgTe6) 216601-09-1, Germanium
 magnesium telluride (GeMg2Te4) 216601-10-4, Aluminum calcium
 telluride (Al2CaTe4) 216601-11-5, Calcium tin telluride (CaSnTe3)
 216601-12-6 216601-13-7, Calcium lead telluride (CaPbTe3)
 216601-14-8, Cadmium calcium telluride (CdCaTe2) 216601-15-9,
 Bismuth calcium telluride (Bi2CaTe6) 216601-16-0, Calcium indium
 telluride (CaIn2Te4) 216601-17-1, Calcium zinc telluride (CaZnTe2)
 216601-18-2, Calcium gallium telluride (CaGa2Te4) 216601-19-3,
 Calcium germanium telluride (Ca2GeTe4) 216601-21-7, Strontium tin
 telluride (SrSnTe3) 216601-22-8 216601-23-9, Lead strontium
 telluride (PbSrTe3) 216601-24-0, Cadmium strontium telluride
 (CdSrTe2) 216601-25-1, Bismuth strontium telluride (Bi2SrTe6)
 216601-27-3, Strontium zinc telluride (SrZnTe2) 216601-29-5,
 Germanium strontium telluride (GeSr2Te4) 216601-30-8, Barium tin
 telluride (BaSnTe3) 216601-31-9 216601-32-0, Barium lead
 telluride (BaPbTe3) 216601-33-1, Barium cadmium telluride
 (BaCdTe2) 216601-34-2, Barium bismuth telluride (BaBi2Te6)
 216601-35-3, Barium zinc telluride (BaZnTe2) 216601-36-4, Barium
 germanium telluride (Ba2GeTe4) 216601-37-5, Barium strontium tin
 telluride (Ba0.5Sr0.5SnTe3) 216601-38-6, Barium strontium tin
 telluride (Ba0.7Sr0.3SnTe3) 216601-39-7, Barium strontium tin
 telluride (Ba0.9Sr0.1SnTe3) 216601-40-0, Barium magnesium tin
 telluride (Ba0.5Mg0.5SnTe3) 216601-41-1 216601-42-2, Barium lead
 strontium telluride (Ba0.5PbSr0.5Te3) 216601-43-3, Sodium tin
 telluride (Na2SnTe3) 216601-44-4 216601-45-5, Lead sodium
 telluride (PbNa2Te3) 216601-46-6, Cadmium sodium telluride
 (CdNa2Te2) 216601-47-7, Bismuth sodium telluride (BiNaTe3)
 216601-48-8, Sodium zinc telluride (Na2ZnTe2) 216601-49-9,
 Germanium sodium telluride (GeNa4Te4) 216601-50-2, Potassium tin
 telluride (K2SnTe3) 216601-51-3, Lead potassium telluride
 (PbK2Te3) 216601-52-4, Cadmium potassium telluride (CdK2Te2)
 216601-53-5, Bismuth potassium telluride (BiKTe3) 216601-54-6,
 Potassium zinc telluride (K2ZnTe2) 216601-55-7, Aluminum strontium
 tin telluride (Al2SrSnTe6) 216601-56-8 216601-57-9, Aluminum
 lead strontium telluride (Al2PbSrTe6) 216601-58-0, Aluminum
 cadmium strontium telluride (Al2CdSrTe5) 216601-59-1, Aluminum
 bismuth strontium telluride (AlBiSrTe5) 216601-60-4, Aluminum

indium strontium telluride (AlInSrTe_4) 216601-61-5, Aluminum
strontium zinc telluride ($\text{Al}_2\text{SrZnTe}_5$) 216601-62-6, Aluminum
gallium strontium telluride (AlGaSrTe_4) 216601-63-7, Aluminum
germanium strontium telluride ($\text{Al}_2\text{GeSrTe}_5$) 216601-64-8, Aluminum
barium tin telluride ($\text{Al}_2\text{BaSnTe}_6$) 216601-65-9, Barium tin
telluride tellurosilicate ($\text{BaSnTe}(\text{SiTe}_4)$) 216601-66-0, Barium lead
tin telluride (BaPbSnTe_5) 216601-67-1, Barium cadmium tin
telluride (BaCdSnTe_4) 216601-68-2, Barium bismuth tin telluride
($\text{BaBi}_2\text{SnTe}_8$) 216601-69-3, Barium indium tin telluride ($\text{BaIn}_2\text{SnTe}_5$)
216601-70-6, Barium tin zinc telluride (BaSnZnTe_4) 216601-71-7,
Barium gallium tin telluride ($\text{BaGa}_2\text{SnTe}_6$) 216601-72-8, Barium
germanium tin telluride ($\text{BaGeSn}_2\text{Te}_5$) 216601-73-9 216601-74-0,
Potassium tin telluride tellurosilicate ($\text{K}_2\text{SnTe}(\text{SiTe}_4)$)
216601-75-1, Lead potassium telluride tellurosilicate
($\text{PbK}_2\text{Te}(\text{SiTe}_4)$) 216601-76-2 216601-77-3 216601-78-4
216601-79-5 216601-80-8 216601-81-9, Germanium potassium
silicide telluride ($\text{GeK}_2\text{Si}_2\text{Te}_5$) 216601-82-0, Aluminum lead
magnesium telluride ($\text{Al}_2\text{PbMgTe}_6$) 216601-83-1, Lead magnesium tin
telluride (PbMgSnTe_5) 216601-84-2, Lead magnesium telluride
tellurosilicate ($\text{PbMgTe}(\text{SiTe}_4)$) 216601-85-3, Cadmium lead
magnesium telluride (CdPbMgTe_4) 216601-86-4, Bismuth lead
magnesium telluride ($\text{Bi}_2\text{PbMgTe}_8$) 216601-87-5, Indium lead
magnesium telluride ($\text{In}_2\text{PbMgTe}_6$) 216601-88-6, Lead magnesium zinc
telluride (PbMgZnTe_4) 216601-89-7, Gallium lead magnesium
telluride ($\text{Ga}_2\text{PbMgTe}_6$) 216601-90-0, Germanium lead magnesium
telluride ($\text{GePb}_2\text{MgTe}_5$) 216601-91-1, Cadmium tin telluride
(CdSnTe_3) 216601-92-2 216601-93-3, Cadmium lead telluride
(CdPbTe_3) 216601-94-4, Bismuth cadmium telluride (BiCdTe_4)
216601-95-5, Cadmium germanium telluride (Cd_2GeTe_4) 216601-96-6,
Bismuth strontium tin telluride ($\text{Bi}_2\text{SrSnTe}_8$) 216601-97-7
216601-98-8, Bismuth lead strontium telluride ($\text{Bi}_2\text{PbSrTe}_8$)
216601-99-9, Bismuth cadmium strontium telluride ($\text{Bi}_2\text{CdSrTe}_7$)
216602-00-5, Bismuth indium strontium telluride (BiInSrTe_5)
216602-01-6, Bismuth strontium zinc telluride ($\text{Bi}_2\text{SrZnTe}_7$)
216602-02-7, Bismuth gallium strontium telluride (BiGaSrTe_5)
216602-03-8, Aluminum barium indium telluride (AlBaInTe_4)
216602-04-9, Barium indium tin telluride ($\text{BaIn}_2\text{SnTe}_6$) 216602-05-0,
Barium indium telluride tellurosilicate ($\text{BaIn}_2\text{Te}_2(\text{SiTe}_4)$)
216602-06-1, Barium indium lead telluride ($\text{BaIn}_2\text{PbTe}_6$)
216602-07-2, Barium cadmium indium telluride ($\text{BaCdIn}_2\text{Te}_5$)
216602-08-3, Barium bismuth indium telluride (BaBiInTe_5)
216602-09-4, Barium indium zinc telluride ($\text{BaIn}_2\text{ZnTe}_5$)
216602-10-7, Barium gallium indium telluride (BaGaInTe_4)
216602-11-8, Barium germanium indium telluride ($\text{BaGeIn}_2\text{Te}_5$)
216602-12-9, Tin zinc telluride (SnZnTe_4) 216602-13-0
216602-14-1, Lead zinc telluride (PbZnTe_3) 216602-15-2, Bismuth
zinc telluride (Bi_2ZnTe_6) 216602-16-3, Germanium zinc telluride
(GeZn_2Te_4) 216602-17-4, Aluminum gallium magnesium telluride

(AlGaMgTe₄) 216602-18-5, Gallium magnesium tin telluride
 (Ga₂MgSnTe₆) 216602-19-6 216602-20-9, Cadmium gallium magnesium
 telluride (CdGa₂MgTe₅) 216602-21-0, Bismuth gallium magnesium
 telluride (BiGaMgTe₅) 216602-22-1, Gallium indium magnesium
 telluride (GaInMgTe₄) 216602-23-2, Gallium magnesium zinc
 telluride (Ga₂MgZnTe₅) 216602-24-3, Gallium germanium magnesium
 telluride (Ga₂GeMgTe₅) 216602-25-4, Aluminum calcium germanium
 telluride (Al₂CaGeTe₆) 216602-26-5, Calcium germanium tin
 telluride (CaGeSnTe₅) 216602-27-6 216602-28-7, Calcium germanium
 lead telluride (CaGePbTe₅) 216602-29-8, Cadmium calcium germanium
 telluride (CdCaGeTe₄) 216602-30-1, Bismuth calcium germanium
 telluride (Bi₂CaGeTe₈) 216602-31-2, Calcium germanium indium
 telluride (CaGeIn₂Te₆) 216602-32-3, Calcium germanium zinc
 telluride (CaGeZnTe₄) 216602-33-4, Calcium gallium germanium
 telluride (CaGa₂GeTe₆) 216602-34-5, **Lithium** magnesium
 tin oxide (Li_{0.1}MgSnO₃) 216602-35-6, **Lithium** magnesium
 tin oxide (Li_{0.5}MgSnO₃) 216602-36-7, **Lithium** magnesium
 tin oxide (LiMgSnO₃) 216602-37-8, **Lithium** magnesium tin
 oxide (Li₂MgSnO₃) 216602-38-9, **Lithium** magnesium tin
 oxide (Li₃MgSnO₃) 216602-39-0, **Lithium** magnesium tin
 oxide (Li₄MgSnO₃) 216602-40-3, **Lithium** magnesium tin
 oxide (Li₅MgSnO₃) 216602-41-4, **Lithium** magnesium tin
 oxide (Li₆MgSnO₃) 216602-42-5, **Lithium** magnesium tin
 oxide (Li₇MgSnO₃) 216602-43-6, **Lithium** magnesium tin
 oxide (Li₈MgSnO₃) 216602-44-7, **Lithium** magnesium tin
 oxide (Li₉MgSnO₃) 216602-45-8, **Lithium** magnesium tin
 oxide (Li₁₀MgSnO₃) 216602-46-9, **Lithium** magnesium tin
 oxide (Li₁₁MgSnO₃) 216602-47-0, **Lithium** magnesium tin
 oxide (Li₁₂MgSnO₃) 216602-48-1, Antimony **lithium** tin
 oxide (SbLi_{0.1}SnO₃) 216602-49-2, Antimony **lithium** tin
 oxide (SbLi_{0.5}SnO₃) 216602-50-5, Barium **lithium**
 strontium tin oxide (BaLiSrSnO₃) 216602-51-6, Barium
lithium strontium tin oxide (BaLi₂SrSnO₃) 216602-52-7,
 Barium **lithium** strontium tin oxide (BaLi₃SrSnO₃)
 216602-53-8, Barium **lithium** strontium tin oxide
 (BaLi₄SrSnO₃) 216602-54-9, Barium **lithium** strontium tin
 oxide (BaLi₅SrSnO₃) 216602-55-0, Barium **lithium**
 strontium tin oxide (BaLi₆SrSnO₃) 216602-56-1, Barium
lithium strontium tin oxide (BaLi₇SrSnO₃) 216602-57-2,
 Barium **lithium** strontium tin oxide (BaLi₈SrSnO₃)
 216602-58-3, Barium **lithium** strontium tin oxide
 (BaLi₉SrSnO₃) 216602-59-4, Barium **lithium** strontium tin
 oxide (BaLi₁₀SrSnO₃) 216602-60-7, Barium **lithium**
 strontium tin oxide (BaLi₁₁SrSnO₃) 216602-61-8, Barium
lithium strontium tin oxide (BaLi₁₂SrSnO₃) 216602-62-9,
 Calcium **lithium** tin sulfide (CaLi_{0.1}SnS₃) 216602-63-0,
 Calcium **lithium** tin sulfide (CaLi_{0.5}SnS₃) 216602-64-1,
 Calcium **lithium** tin sulfide (CaLiSnS₃) 216602-65-2,

Calcium **lithium** tin sulfide (CaLi₂SnS₃) 216602-66-3,
 Calcium **lithium** tin sulfide (CaLi₃SnS₃) 216602-67-4,
 Calcium **lithium** tin sulfide (CaLi₄SnS₃) 216602-68-5,
 Calcium **lithium** tin sulfide (CaLi₅SnS₃) 216602-69-6,
 Calcium **lithium** tin sulfide (CaLi₆SnS₃) 216602-70-9,
 Calcium **lithium** tin sulfide (CaLi₇SnS₃) 216602-71-0,
 Calcium **lithium** tin sulfide (CaLi₈SnS₃) 216602-72-1,
 Calcium **lithium** tin sulfide (CaLi₉SnS₃) 216602-73-2,
 Calcium **lithium** tin sulfide (CaLi₁₀SnS₃) 216602-74-3,
 Calcium **lithium** tin sulfide (CaLi₁₁SnS₃) 216602-75-4,
 Calcium **lithium** tin sulfide (CaLi₁₂SnS₃) 216602-76-5,
Lithium strontium tin selenide (Li_{0.1}SrSnSe₃) 216602-77-6,
Lithium strontium tin selenide (Li_{0.5}SrSnSe₃) 216602-78-7,
Lithium strontium tin selenide (LiSrSnSe₃) 216602-79-8,
 Calcium **lithium** tin selenide (CaLi₂SnSe₃) 216602-80-1,
 Calcium **lithium** tin selenide (CaLi₃SnSe₃) 216602-81-2,
 Calcium **lithium** tin selenide (CaLi₄SnSe₃) 216602-82-3,
 Calcium **lithium** tin selenide (CaLi₅SnSe₃) 216602-83-4,
 Calcium **lithium** tin selenide (CaLi₆SnSe₃) 216602-84-5,
 Calcium **lithium** tin selenide (CaLi₇SnSe₃) 216602-85-6,
 Calcium **lithium** tin selenide (CaLi₈SnSe₃) 216602-86-7,
 Calcium **lithium** tin selenide (CaLi₉SnSe₃) 216602-87-8,
 Calcium **lithium** tin selenide (CaLi₁₀SnSe₃) 216602-88-9,
 Calcium **lithium** tin selenide (CaLi₁₁SnSe₃) 216602-89-0,
 Calcium **lithium** tin selenide (CaLi₁₂SnSe₃) 216602-90-3,
 Barium **lithium** tin telluride (BaLi_{0.1}SnTe₃) 216602-91-4,
 Barium **lithium** tin telluride (BaLi_{0.5}SnTe₃) 216602-92-5,
 Barium **lithium** tin telluride (BaLiSnTe₃) 216602-93-6,
 Barium **lithium** tin telluride (BaLi₂SnTe₃) 216602-94-7,
 Barium **lithium** tin telluride (BaLi₃SnTe₃) 216602-95-8,
 Barium **lithium** tin telluride (BaLi₄SnTe₃) 216602-96-9,
 Barium **lithium** tin telluride (BaLi₅SnTe₃) 216602-97-0,
 Barium **lithium** tin telluride (BaLi₆SnTe₃) 216602-98-1,
 Barium **lithium** tin telluride (BaLi₇SnTe₃) 216602-99-2,
 Barium **lithium** tin telluride (BaLi₈SnTe₃) 216603-00-8,
 Barium **lithium** tin telluride (BaLi₉SnTe₃) 216603-01-9,
 Barium **lithium** tin telluride (BaLi₁₀SnTe₃) 216603-02-0,
 Barium **lithium** tin telluride (BaLi₁₁SnTe₃) 216603-03-1,
 Barium **lithium** tin telluride (BaLi₁₂SnTe₃)

(anode in high-performance **nonaq.**-electrolyte
batteries)

IT 130811-82-4, Cobalt **lithium** manganese oxide (Co_{0.2}Li
 Mn_{1.8}O₄)

(cathode in high-performance **nonaq.**
 -electrolyte **batteries**)

L145 ANSWER (11) OF 19 HCA COPYRIGHT 2005 ACS on STN
 128:169835 **Lithium** transition metal composite oxides and

Sr(OH)₂ - cathode
 print out?

nonaqueous secondary **batteries** using them.

Matsuda, Yoshio; Takanishi, Keijiro; Tsukamoto, Jun (Toray Industries, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 10027610 A2

19980127 Heisei, 8 pp. (Japanese). CODEN: JKXXAF.

APPLICATION: JP 1996-180839 19960710.

AB The composite metal oxides, which can absorb and discharge **Li** ion, has $I_h/I_l \leq 0.07$ (I_h = Raman band intensity at 520-600 cm^{-1} ; I_l = the intensity at 450-510 cm^{-1}). The oxide may be $\text{Li}_{1-x}\text{A}_x\text{Ni}_{1-y}\text{B}_y\text{O}_2$ (I ; A = Sr, Ba; Q = transition metal; $0 < x \leq 0.10$; $0 < y \leq 0.30$; $a = -0.10-0.10$; $b = -0.15-0.15$) or I (A = alk. earth metal). Manuf. of the oxide by blending raw materials contg. **Li** and A and other raw materials contg. Ni and Q at stoichiometric ratio ≥ 0.90 and < 1.00 and firing in an oxidn. atm. **Nonaq.** secondary **batteries** using the oxides as preferably **cathodes**, which have high capacitance and good charging-discharging characteristics.

IT **18480-07-4**, Strontium hydroxide
(**lithium**-absorbing transition metal composite oxide for **cathode** active mass from)

RN 18480-07-4 HCA

CN Strontium hydroxide ($\text{Sr}(\text{OH})_2$) (9CI) (CA INDEX NAME)

HO—Sr—OH

IC ICM H01M004-58

ICS C01G053-00; H01M004-02; H01M004-04; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **lithium** composite oxide **nonaq** secondary **battery**; transition metal **lithium** oxide **battery cathode**; Raman band intensity ratio metal oxide

IT Carbon fibers, uses
(**anode** active mass; **lithium**-absorbing transition metal composite oxide for **cathode** active mass in **nonaq.** secondary **batteries**)

IT **Battery cathodes**
Secondary **batteries**
(**lithium**-absorbing transition metal composite oxide for **cathode** active mass in **nonaq.** secondary **batteries**)

IT 202915-55-7P
(**cathode** active mass; **lithium**-absorbing transition metal composite oxide for **cathode** active mass in **nonaq.** secondary **batteries**)

IT 1310-65-2, **Lithium** hydroxide (LiOH) 12054-48-7, Nickel hydroxide 12672-51-4, Cobalt hydroxide 17194-00-2, Barium

hydroxide **18480-07-4**, Strontium hydroxide
(**lithium**-absorbing transition metal composite oxide for
cathode active mass from)

IT 202915-53-5P, Cobalt **lithium** nickel oxide
(Co_{0.11}Li_{1.02}Ni_{0.89}O₂)
(strontium-doped **cathode** active mass; **lithium**
-absorbing transition metal composite oxide for **cathode**
active mass in **nonaq.** secondary **batteries**)

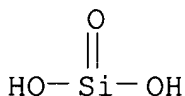
L145 ANSWER 12 OF 19 HCA COPYRIGHT 2005 ACS on STN *Na₂SiO₃ in electrolyte.*
128:50757 Fluorine-containing **lithium** salts and silicates for
nonaqueous electrolyte secondary **batteries**.
Nishida, Nobumichi; Jinno, Maruo; Yamazaki, Kimiya; Noma, Toshiyuki;
Nishio, Akiji (Sanyo Electric Co., Ltd., Japan). Jpn. Kokai Tokkyo
Koho JP 09306541 A2 **19971128** Heisei, 8 pp. (Japanese).
CODEN: JKXXAF. APPLICATION: JP 1996-146680 19960515.

AB The **batteries** have a carbonaceous material neg.
electrode and a **nonaq.** electrolyte contg. a
F-contg. **Li** salt and 0.1-10% silicate selected from
xM₁2O.ySiO₂, xM₂O.ySiO₂, and xM₃2O₃.ySiO₂, where M₁-M₃ = K, Na, Mg,
Ca, Fe and Al, x = 1-2, and y = 1-4. The **batteries** show
improved load characteristics.

IT **6834-92-0**
(additive; fluorine-contg. **lithium** salts and silicates
for **nonaq.** electrolyte secondary **batteries**)

RN 6834-92-0 HCA

CN Silicic acid (H₂SiO₃), disodium salt (8CI, 9CI) (CA INDEX NAME)



● 2 Na

IC ICM H01M010-40

ICS H01M010-40; H01M004-02; H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **lithium** secondary **battery** silicate additive

IT Secondary **batteries**

(**lithium**; fluorine-contg. **lithium** salts and
silicates for **nonaq.** electrolyte secondary
batteries)

IT **6834-92-0** 10101-39-0 12135-35-2, Silicon sodium oxide
(Si₄Na₂O₉) 13472-30-5 13774-18-0 13870-28-5
(additive; fluorine-contg. **lithium** salts and silicates)

- for **nonaq.** electrolyte secondary **batteries**)
- IT 14283-07-9, **Lithium** tetrafluoroborate 29935-35-1,
Lithium hexafluoroarsenate 33454-82-9 90076-65-6
 (electrolyte; fluorine-contg. **lithium** salts and
 silicates for **nonaq.** electrolyte secondary
batteries)
- IT 12190-79-3, Cobalt **lithium** oxide (LiCoO₂)
 (pos. active material; fluorine-contg. **lithium** salts
 and silicates for **nonaq.** electrolyte secondary
batteries)

L145 ANSWER (13) OF 19 HCA COPYRIGHT 2005 ACS on STN

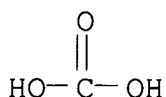
127:178778 Secondary **nonaqueous** electrolyte **batteries**
 containing salt additives. Fujimoto, Hiroshi; Tanaka, Mitsutoshi
 (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP
 09180758 A2 **19970711** Heisei, 12 pp. (Japanese). CODEN:
 JKXXAF. APPLICATION: JP 1995-336533 19951225.

AB The **batteries** contain a salt additive in their
cathodes, anodes, electrolyte, and/or any void in
the batteries. The salt is preferably carbonate, oxalate,
 nitrate, acetate, phosphate, and/or borate of **Li**, Na, K,
 Ce, Mg, Ca, Ba, and/or Mn. These **batteries** have long
 cycle life.

IT **144-55-8**, Sodium bicarbonate, uses
 (salt additives for **lithium** cobaltate **cathodes**
 in **batteries**)

RN 144-55-8 HCA

CN Carbonic acid monosodium salt (8CI, 9CI) (CA INDEX NAME)

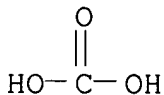


*mono + di sodium
highly relevant.*

● Na

- IC ICM H01M010-40
 ICS H01M004-02; H01M004-62; H01M010-04
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST **battery** salt additive
- IT **Battery cathodes**
 (**lithium** cobaltate **cathodes** contg. salt
 additives for secondary **lithium batteries**)
- IT Secondary **batteries**
 (secondary **lithium batteries** contg. salt
 additives in **battery** members or voids in

- battery** case for cycle life)
- IT 14283-07-9, **Lithium** fluoroborate 21324-40-3,
Lithium hexafluorophosphate
 (electrolytes contg. **lithium** hexafluorophosphate and
lithium fluoroborate for secondary **lithium**
batteries contg. salt additives)
- IT 184347-49-7P
 (manuf. of **anodes** for secondary **lithium**
batteries contg. salt additives)
- IT 12190-79-3, Cobalt **lithium** oxide (CoLiO₂)
 (salt additives for **lithium** cobaltate **cathodes**
 in **batteries**)
- IT 62-76-0, Sodium oxalate **144-55-8**, Sodium bicarbonate, uses
 471-34-1, Calcium carbonate, uses 534-17-8, Cesium carbonate
 546-89-4, **Lithium** acetate 554-13-2, **Lithium**
 carbonate 598-62-9, Manganese carbonate (MnCO₃) 7558-79-4,
 Disodium hydrogen phosphate 18365-41-8, Cesium oxalate
 (salt additives for **lithium** cobaltate **cathodes**
 in **batteries**)
- L145 ANSWER 14 OF 19 HCA COPYRIGHT 2005 ACS on STN *NaHCO₃ rel.*
 127:111259 **Nonaqueous** secondary **batteries** with
 sheet-type **electrodes** containing salt thin films.
 Fujimoto, Hiroshi; Miyaki, Yukio (Fuji Photo Film Co., Ltd., Japan;
 Ube Industries, Ltd.). Jpn. Kokai Tokkyo Koho JP 09180703 A2
19970711 Heisei, 13 pp. (Japanese). CODEN: JKXXAF.
 APPLICATION: JP 1995-338685 19951226.
- AB Claimed **batteries** uses sheet-type **cathodes**
 and/or **anodes** having coated active mass on current
 collectors, where the **electrodes** have salts-contg. thin
 films on the active mass layers. The **batteries** have long
 cycle life.
- IT **144-55-8**, Carbonic acid monosodium salt, uses
 (**Li ion batteries** with sheet-type
electrodes contg. salt thin films for long cycle life)
- RN 144-55-8 HCA
- CN Carbonic acid monosodium salt (8CI, 9CI) (CA INDEX NAME)

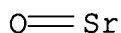


● Na

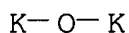
IC ICM H01M004-02

- ICS H01M004-62; H01M010-40
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST **cathode** salt film **nonaq battery**;
anode salt film **nonaq battery**; salt film
sheet **electrode battery**
- IT **Battery anodes**
Battery cathodes
(Li ion **batteries** with sheet-type
electrodes contg. salt thin films for long cycle life)
- IT Borates
Carbonates, uses
Nitrates, uses
Phosphates, uses
(Li ion **batteries** with sheet-type
electrodes contg. salt thin films for long cycle life)
- IT Secondary **batteries**
(lithium; Li ion **batteries** with
sheet-type **electrodes** contg. salt thin films for long
cycle life)
- IT 62-76-0, Sodium oxalate **144-55-8**, Carbonic acid monosodium
salt, uses 546-89-4, **Lithium** acetate 553-91-3,
Lithium oxalate 554-13-2, **Lithium** carbonate
598-62-9, Manganese carbonate 7790-69-4, **Lithium** nitrate
(Li ion **batteries** with sheet-type
electrodes contg. salt thin films for long cycle life)
- L145 ANSWER (15) OF 19 HCA COPYRIGHT 2005 ACS on STN No
127:111251 Secondary **nonaqueous** electrolyte **batteries**
. Inoue, Hiroshi; Yasunami, Shoichiro; Inoue, Akiyuki (Fuji Photo
Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09147916 A2
19970606 Heisei, 13 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1995-301298 19951120.
- AB The **batteries** have a protective film contg. solid
particles, a water sol. polymer, and optionally a conductive powder,
applied on their Li intercalating **cathodes**
and/or **anode** surface. The solid particles contains oxides
of Na, K, Mg, Ca, Sr, Zr, Al and/or Si; and the polymer may be a
poly(acrylic acid) or cellulose deriv. These **batteries**
have high voltage and long cycle life.
- IT **1313-59-3**, Sodium oxide, uses **1314-11-0**, Strontium
oxide, uses **12136-45-7**, Potassium oxide, uses
(oxide-water sol. polymer coatings for **lithium**
intercalating **electrodes** in **batteries**)
- RN 1313-59-3 HCA
- CN Sodium oxide (Na₂O) (9CI) (CA INDEX NAME)

RN 1314-11-0 HCA
CN Strontium oxide (SrO) (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 12136-45-7 HCA
CN Potassium oxide (K₂O) (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M010-40
ICS H01M004-02; H01M004-62
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **lithium battery electrode** oxide
protection coating
IT **Battery electrodes**
(oxide-water sol. polymer coatings for **electrodes** in
secondary **lithium batteries**)
IT 182203-62-9, Magnesium tin oxide silicate (Mg_{0.2}Sn_{0.4}(SiO₃)_{0.8})
182203-65-2, Aluminum magnesium tin oxide silicate
(Al_{0.2}Mg_{0.2}Sn_{0.3}(SiO₄)_{0.6}) 182203-66-3, Magnesium tin oxide
phosphate silicate (Mg_{0.2}Sn_{0.3}(PO₄)_{0.2}(SiO₃)_{0.6}) 182203-69-6
182319-19-3, Magnesium tin borate oxide silicate
(Mg_{0.2}Sn(BO₃)_{0.2}0.3(SiO₃)_{0.6}) 182319-27-3, Magnesium tin borate
phosphate silicate (Mg_{0.3}Sn(BO₃)_{0.1}(PO₄)_{0.1}(SiO₄)_{0.5})
(**lithium** intercalating **anodes** with
oxide-water sol. polymer coatings for **batteries**)
IT 12190-79-3, Cobalt **lithium** oxide (CoLiO₂)
(**lithium** intercalating **cathodes** with
oxide-water sol. polymer coatings for **batteries**)
IT 1305-78-8, Calcia, uses 1309-48-4, Magnesia, uses
1313-59-3, Sodium oxide, uses **1314-11-0**, Strontium
oxide, uses 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses
7631-86-9, Silica, uses 9004-32-4 **12136-45-7**, Potassium
oxide, uses
(oxide-water sol. polymer coatings for **lithium**
intercalating **electrodes** in **batteries**)

L145 ANSWER (16) OF 19 HCA COPYRIGHT 2005 ACS on STN

127:83883 **Nonaqueous** electrolyte **batteries** with

lithium containing manganese oxide **cathodes**.

Uehara, Mayumi; Yamazaki, Mikiya; Yanai, Atsushi; Noma, Toshiyuki;
Nishio, Koji (Sanyo Electric Co., Ltd., Japan). Jpn. Kokai Tokkyo
Koho JP 09139211 A2 **19970527** Heisei, 10 pp. (Japanese).

CODEN: JKXXAF. APPLICATION: JP 1995-296818 19951115.

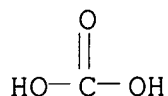
Cathode add.

AB The **batteries** use **cathodes** composed of heat treated **Li** compd. and additive contg. MnO₂, where the **Li** compd. is selected from LiOH, Li₂CO₃, and LiNO₃ and is added at a **Li**/Mn mol ratio (1-30):(70-99); the additive is .gtoreq.1 of hydroxides, carbonates, and nitrates of element M selected Na, K, Rb, Cs, Fr, Be, Mg, Ca, Sr, Ba, Ra, Fe, Al, B, Si, P, Ga, Ge, As, Se, In, Sn, Sb, Te, Pb, Po, and At at a M/**Li** mol ratio (10-40):(60-90). The heat treatment is carried out at 270-380.degree.. These **batteries** have high capacity.

IT **1633-05-2**, Strontium carbonate **18480-07-4**, Strontium hydroxide
(**lithium** compd. and additive contg. heat treated manganese dioxide for **cathodes** in **lithium batteries**)

RN 1633-05-2 HCA

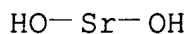
CN Carbonic acid, strontium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



● Sr

RN 18480-07-4 HCA

CN Strontium hydroxide (Sr(OH)₂) (9CI) (CA INDEX NAME)



IC ICM H01M004-58

ICS H01M004-06; H01M004-08; H01M006-16

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery cathode lithium** manganese oxide additive; heat treatment **lithium** manganese oxide **cathode**

IT **Battery cathodes**
(**lithium** compd. and additive contg. heat treated manganese dioxide for **cathodes** in **lithium batteries**)

IT 1313-13-9, Manganese dioxide, uses
(**lithium** compd. and additive contg. heat treated manganese dioxide for **cathodes** in **lithium batteries**)

IT 463-79-6D, Carbonic acid, arssenic salt, uses 463-79-6D, Carbonic acid, astatine salt, uses 463-79-6D, Carbonic acid, boron salts,

uses 463-79-6D, Carbonic acid, phosphorus salt, uses 463-79-6D,
 Carbonic acid, polonium salt, uses 463-79-6D, Carbonic acid,
 selenium salt, uses 463-79-6D, Carbonic acid, silicon salt, uses
 463-79-6D, Carbonic acid, tellurium salt, uses 471-34-1, Calcium
 carbonate, uses 497-19-8, Sodium carbonate, uses 513-77-9,
 Barium carbonate 534-17-8, Cesium carbonate 546-93-0, Magnesium
 carbonate 554-13-2, **Lithium** carbonate 584-08-7,
 Potassium carbonate 584-09-8, Rubidium carbonate 598-63-0, Lead
 carbonate 1305-62-0, Calcium hydroxide, uses 1309-42-8,
 Magnesium hydroxide 1310-58-3, Potassium hydroxide, uses
 1310-65-2, **Lithium** hydroxide 1310-73-2, Sodium
 hydroxide, uses 1310-82-3, Rubidium hydroxide 1343-98-2, Silicon
 hydroxide **1633-05-2**, Strontium carbonate 7116-98-5,
 Radium carbonate 7631-99-4, Sodium nitrate, uses 7697-37-2D,
 Nitric acid, astatine salt, uses 7697-37-2D, Nitric acid, boron
 salt, uses 7697-37-2D, Nitric acid, germanium salt, uses
 7697-37-2D, Nitric acid, phosphorus salt, uses 7697-37-2D, Nitric
 acid, selenium salt, uses 7697-37-2D, Nitric acid, silicon salt,
 uses 7757-79-1, Potassium nitrate, uses 7789-18-6, Cesium
 nitrate 7790-69-4, **Lithium** nitrate 10022-31-8, Barium
 nitrate 10042-76-9, Strontium nitrate 10043-35-3, Boric acid
 (H₃BO₃), uses 10099-74-8, Lead nitrate 10124-37-5, Calcium
 nitrate 10213-12-4, Radium nitrate [Ra(NO₃)₂] 10290-71-8, Iron
 carbonate 10377-60-3, Magnesium nitrate 11113-66-9, Iron
 hydroxide 12023-95-9, Francium hydroxide 12023-99-3, Gallium
 hydroxide 12027-17-7, Polonium hydroxide [Po(OH)₄] 13106-47-3,
 Beryllium carbonate 13126-12-0, Rubidium nitrate 13327-32-7,
 Beryllium hydroxide 13464-58-9, Arsenous acid 13473-90-0,
 Aluminum nitrate 13494-90-1, Gallium nitrate 13597-99-4,
 Beryllium nitrate 13598-36-2, Phosphonic acid 13770-61-1, Indium
 nitrate 14104-77-9, Iron nitrate 14455-29-9, Aluminum carbonate
 15021-18-8, Germanium hydroxide [Ge(OH)₄] 17194-00-2, Barium
 hydroxide **18480-07-4**, Strontium hydroxide 19783-14-3,
 Lead hydroxide 20328-96-5, Antimony nitrate 20661-21-6, Indium
 hydroxide 21351-79-1, Cesium hydroxide 21645-51-2, Aluminum
 hydroxide, uses 39311-68-7, Tin hydroxide 41480-79-9, Tin
 nitrate 53216-05-0 60300-69-8, Selenium hydroxide [Se(OH)₂]
 60459-04-3, Indium carbonate 62362-19-0, Tellurium hydroxide
 64535-94-0, Tellurium nitrate 85184-26-5, Francium nitrate
 90031-84-8, Francium carbonate 91094-39-2, Arsenic nitrate
 95925-37-4, Antimony carbonate [Sb₂(CO₃)₃] 98966-86-0, Radium
 hydroxide [Ra(OH)₂] 126331-89-3, Hypoastatous acid 127795-35-1
 142712-19-4, Carbonic acid, gallium salt 150815-34-2, Carbonic
 acid, tin salt 152761-81-4, Antimony hydroxide
 (**lithium** compd. and additive contg. heat treated
 manganese dioxide for **cathodes** in **lithium**
batteries)

L145 ANSWER (17) OF 19 HCA COPYRIGHT 2005 ACS on STN

126:10027 Secondary **nonaqueous**-electrolyte **lithium**

No

batteries with improved **anodes**. Maekawa, Yukio;
Myasaka, Tsutomu; Kagawa, Okimasa; Matsufuji, Akihiro (Fuji Photo
Film Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 08236158 A2
19960913 Heisei, 11 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1995-38742 19950227.

AB The **batteries** use light metal-intercalatable amorphous
anodes which are heat treated under reducing atm.,
preferably contg. H and/or CO. The amorphous **anodes** may
be MZ.pGO.qX where MZ = oxides or chalcogenides of group IIIA, IVA,
and/or VA metals, preferably SnO, SnO₂, SiO, and/or GeO; GO =
amorphous net forming agents or net modifiers, preferably .gtoreq.1
oxide of Si, Al, B, Ca, Mg, P, **Li**, Na, K, and V; X =
halogen, preferably F; p = 0.25-5 (mol. ratio of MZ:GO); and q
.ltoreq.1 (mol. ratio of MZ:X). The amorphous **anodes** may
be SnO.rSiO₂.sGO with r = 0.1-2 and s = 0.1-2. The
batteries may use electrolytes contg. a **Li** salt
and ethylene carbonate solvent.

IT **1313-59-3**, Sodium oxide, processes **12136-45-7**,
Potassium oxide, processes

(**battery anodes** from heat-treated amorphous
oxides contg.)

RN 1313-59-3 HCA

CN Sodium oxide (Na₂O) (9CI) (CA INDEX NAME)

Na—O—Na

RN 12136-45-7 HCA

CN Potassium oxide (K₂O) (8CI, 9CI) (CA INDEX NAME)

K—O—K

IC ICM H01M010-40

ICS H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery anode** amorphous oxide heating; tin
silicon oxide amorphous **battery anode**

IT **Battery anodes**

(from amorphous tin-silicon oxide heat treated in reducing atm.)

IT 183817-92-7

(**battery anodes** from heat-treated amorphous)

IT 15773-66-7

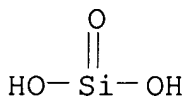
(**battery anodes** from heat-treated amorphous)

IT 1305-78-8, Calcia, processes 1309-48-4, Magnesia, processes

1313-59-3, Sodium oxide, processes 11099-11-9, Vanadium

oxide 12057-24-8, **Lithium** oxide, processes
12136-45-7, Potassium oxide, processes 18282-10-5, Tin
oxide (SnO₂) 20619-16-3, Germanium oxide (GeO) 113443-18-8,
Silicon oxide (SiO)
(**battery anodes** from heat-treated amorphous
oxides contg.)

L145 ANSWER (18) OF 19 HCA COPYRIGHT 2005 ACS on STN *Na₂SiO₃ in cath.*
124:122122 Secondary **nonaqueous battery**. Tanaka,
Mitsutoshi (Fuji Photo Film Co., Ltd., Japan). Eur. Pat. Appl. EP
687025 A1 **19951213**, 24 pp. DESIGNATED STATES: R: DE, FR,
GB, IT. (English). CODEN: EPXXDW. APPLICATION: EP 1995-107217
19950512. PRIORITY: JP 1994-98673 19940512.
AB The **battery** comprising a **cathode** and an
anode has a **cathode** active material mixt. which
contains an acid contg. .gtoreq.1 of P, B, Si, Mo, and W or their
salt. The **battery** has improved safety in case of abrupt
temp. increase. The acid which is to be contained in the
cathode active material mixt. includes H₃PO₄, H₃BO₃, H₂MoO₄,
and H₂WO₄.
IT **6834-92-0**, Disodium metasilicate
(in **cathodes** of secondary **nonaq.**
battery)
RN 6834-92-0 HCA
CN Silicic acid (H₂SiO₃), disodium salt (8CI, 9CI) (CA INDEX NAME)



●2 Na

IC ICM H01M010-00
ICS H01M004-58; H01M004-36; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** secondary **nonaq cathode**;
phosphoric acid **nonaq battery cathode**;
boric acid **nonaq battery cathode**;
molybdic acid **nonaq battery cathode**;
tungstic acid **nonaq battery cathode**;
safety secondary **nonaq battery**
IT **Cathodes**
(**battery**, active material having acid contg. phosphorus
and/or boron and/or silicon and/or molybdenum and/or tungsten
for)

IT 1330-43-4, Disodium tetraborate 2466-09-3, Pyrophosphoric acid
6834-92-0, Disodium metasilicate 7601-54-9, Trisodium
 phosphate 7631-95-0, Disodium molybdate 7664-38-2, Phosphoric
 acid, uses 7758-11-4, Dipotassium hydrogen phosphate 7758-29-4,
 Sodium polyphosphate (Na₅P₃O₁₀) 7775-19-1, Sodium metaborate
 7782-91-4, Molybdic acid 7783-03-1, Tungstic acid 7790-60-5
 10006-28-7, Dipotassium metasilicate 10043-35-3, Boric acid, uses
 10193-36-9, Silicic acid 10343-62-1, Metaphosphoric acid
 10361-65-6, Ammonium phosphate 11120-25-5, Ammonium tungstate
 ((NH₄)₁₀W₁₂O₄₁) 12007-60-2, Dilithium tetraborate 12228-79-4,
 Pyroboric acid 13106-76-8, Diammonium molybdate 13446-49-6,
 Dipotassium molybdate 13453-80-0, **Lithium** dihydrogen
 phosphate 13460-50-9, Metaboric acid 13472-45-2, Disodium
 tungstate 13568-40-6 173103-44-1
 (in **cathodes** of secondary **nonaq.**
battery)

L145 ANSWER 19 OF 19 HCA COPYRIGHT 2005 ACS on STN *not really*
 110:42058 Secondary **nonaqueous batteries** with
 carbonaceous **anode** supports. Sato, Yuichi; Inada,
 Kuniaki; Ikeda, Katsuharu; Nose, Hiroyoshi; Miyabayashi, Mitsutaka;
 Itsubo, Akira; Yui, Hiroshi; Komada, Megumi (Toshiba Battery Co.,
 Ltd., Japan; Mitsubishi Petrochemical Co., Ltd.). Jpn. Kokai Tokkyo
 Koho JP 63193462 A2 **19880810** Showa, 8 pp. (Japanese).
 CODEN: JKXXAF. APPLICATION: JP 1987-22482 19870204.

AB The **batteries** have **Li** or **Li**-based
anode-active mass loaded on particles of a carbonaceous
 material having a sp. surface area $A > 1 \text{ m}^2/\text{g}$ and comprising cryst.
 and amorphous structure units. The carbonaceous material has a H:C
 at. ratio $r < 0.15$, a $G < 2.5$ where G is the ratio of the Raman
 spectrum peak area of the material at $1580 \pm 100/\text{cm}$ wave no. to
 that at $1360 \pm 100/\text{cm}$ wave no. using a $5145\text{-}\text{\AA}$ -wavelength
 Ar-laser light source, a spacing of the (002) planes $d' > 3.37 \text{ \AA}$,
 and a unit-cell length in its c-axial direction $L < 150 \text{ \AA}$. The
 vol.-av. diam. of the structural units can be $< 200 \text{ \AA}$ and the
 vol.-av. diam. d of the particles can be $< 100 \text{ \mu m}$. Thus, o cresol
 108, paraformaldehyde 32, Et cellosolve 240, and H₂SO₄ 10 g were
 reacted at 115° , neutralized with 17 g **NaHCO₃** and
 30 g water. A mixt. of 2.25 g obtained Novolak resin and 0.25 g
 hexamine was melted, kneaded, heated at 250° in N, sintered
 at 1750° for 2 h in N, activated at $800\text{-}900^\circ$ for 2 h
 in a 0.5-g/sintered material-min steam flow and ground to obtain a
 carbonaceous material having $r = 0.04$, $G = 0.60$, $d' = 3.60 \text{ \AA}$, L
 $= 15 \text{ \AA}$, $A = 20 \text{ m}^2/\text{g}$, and $d = 10 \text{ \mu m}$. A 50-mg mixt. contg. 95%
 this material and 5% polyethylene was pressed to form a 0.5-mm-thick
 pellet and loaded with 1.0-mA-h **Li** by electrolysis at 0.5
 mA/cm² in a 1M **Li**⁺ soln. to obtain an **anode**. A
battery using this **anode**, a V2O₅-17.5 mol% WO₃

cathode preloaded with 6.0 mA-h **Li** by electrolysis, and a 1M LiClO₄/propylene carbonate electrolyte had a longer cycle life and smaller self-discharge than a control

battery.

IC ICM H01M004-02
ICS H01M004-58; H01M004-62
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery lithium anode** polyacene support
IT Polyacenes
(**anode** supports, **lithium**, manuf. of, for **batteries**)
IT **Anodes**
(**battery**, **lithium**, polyacene supports for, manuf. of)
IT 7439-93-2, **Lithium**, uses and miscellaneous
(**anodes**, polyacene supports for, in **batteries**)
)

=> D L146 1-29 TI

L146 ANSWER 1 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Chemical power supply

L146 ANSWER 2 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Nonaqueous lithium** secondary **batteries**

L146 ANSWER 3 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Insoluble Fe(VI) compounds: effects on the super-iron **battery**

L146 ANSWER 4 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Electrochemical hydrogen and **lithium** absorption/desorption in Ti₄₆Ni₄₅Nb₉ alloy in aqueous electrolytes

L146 ANSWER 5 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Anode** materials for secondary **nonaqueous** electrolyte **batteries**, their manufacture, and the **batteries**

L146 ANSWER 6 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Nonaqueous** secondary **batteries** and manufacture of **lithium** nickel mixed oxide **cathodes** for them

L146 ANSWER 7 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Anode** materials for secondary **nonaqueous** **batteries**, their manufacture, and the **batteries**

- L146 ANSWER 8 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **nonaqueous batteries** with
anodes containing carbonate additives
- L146 ANSWER 9 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **nonaqueous battery**
- L146 ANSWER 10 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Nonaqueous lithium batteries** with
improved **cathodes**
- L146 ANSWER 11 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **nonaqueous lithium batteries**
and alkali or alkaline earth metal modified coke **anodes** of
the **batteries**
- L146 ANSWER 12 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Nonaqueous** secondary **batteries** and **anode**
materials for these **batteries**
- L146 ANSWER 13 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Anode** materials and secondary **batteries** using
them
- L146 ANSWER 14 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Organic-electrolyte secondary **battery**
- L146 ANSWER 15 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **nonaqueous batteries** with
active-carbon **cathode**
- L146 ANSWER 16 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Nonaqueous**-electrolyte load-leveling **battery**
- L146 ANSWER 17 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Nonaqueous batteries** and manufacture of their
cathode-active mass
- L146 ANSWER 18 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Vanadium bronze **cathodes** for **lithium**
batteries
- L146 ANSWER 19 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **batteries**
- L146 ANSWER 20 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **nonaqueous batteries**

L146 ANSWER 21 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Porous film

L146 ANSWER 22 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Lithium battery**

L146 ANSWER 23 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Lithium battery**

L146 ANSWER 24 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Lithium battery**

L146 ANSWER 25 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Nonaqueous-electrolyte battery**

L146 ANSWER 26 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Batteries** with **nonaqueous** electrolyte

L146 ANSWER 27 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Organic electrolyte **battery**

L146 ANSWER 28 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Cathode** material for **nonaqueous** electrolyte
battery

L146 ANSWER 29 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Fused **electrolytes** for fuel **cells**

=> D L146 2,5-20,22-28 CBIB ABS HITSTR HITIND

L146 ANSWER (2) OF 29 HCA COPYRIGHT 2005 ACS on STN
134:254647 **Nonaqueous lithium** secondary

B.D.

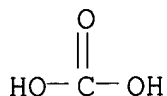
batteries. Segawa, Takeshi; Fui, Samu; Miyaki, Yukio;
Tomita, Takashi (Sony Corp., Japan). Jpn. Kokai Tokkyo Koho JP
2001084998 A2 20010330, 6 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1999-262683 19990916.

AB The **batteries** comprise **Li**-intercalating
anodes and **cathodes** comprising of **Li** Ni
mixed oxides contg. **Li** carbonate, Na carbonate, and/or K
carbonate. The **batteries** show large capacity even after
repeated charge-discharge cycles.

IT **497-19-8**, Sodium carbonate, uses
(**nonaq. lithium** secondary **batteries**
with **lithium** nickel oxide **cathodes** contg.
lithium, sodium, and/or potassium carbonates)

RN 497-19-8 HCA

CN Carbonic acid disodium salt (8CI, 9CI) (CA INDEX NAME)



●2 Na

- IC ICM H01M004-02
ICS H01M004-58; H01M010-40
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST **nonaq lithium** secondary **battery**
cathode; carbonate contg **lithium** nickel oxide
battery cathode
- IT Secondary **battery** separators
(**nonaq. lithium** secondary **batteries**
with **lithium** nickel oxide **cathodes** contg.
lithium, sodium, and/or potassium carbonates)
- IT **497-19-8**, Sodium carbonate, uses 554-13-2, **Lithium**
carbonate 584-08-7, Potassium carbonate
(**nonaq. lithium** secondary **batteries**
with **lithium** nickel oxide **cathodes** contg.
lithium, sodium, and/or potassium carbonates)
- IT 113066-89-0P, Cobalt **lithium** nickel oxide (Co0.2LiNi0.8O2)
116327-68-5P, Cobalt **lithium** nickel oxide (Co0.3LiNi0.7O2)
(**nonaq. lithium** secondary **batteries**
with **lithium** nickel oxide **cathodes** contg.
lithium, sodium, and/or potassium carbonates)
- L146 ANSWER 5 OF 29 HCA COPYRIGHT 2005 ACS on STN Kolt relevant.
127:208133 **Anode** materials for secondary **nonaqueous**
electrolyte **batteries**, their manufacture, and the
batteries. Kitamura, Kenichi; Imoto, Masahiro; Yamada,
Shinichiro (Sony Corp., Japan). Jpn. Kokai Tokkyo Koho JP 09204918
A2 **19970805** Heisei, 8 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1996-263479 19960912. PRIORITY: JP 1995-329782
19951125.
- AB The **anode** materials are carbonaceous materials contg.
0.1-5.0% (as the element) alkali metal, alk. earth metal, and/or P.
The carbonaceous materials are formed by firing polymers, monomers,
and/or O crosslinked pitch at 3000.degree. in an inert atm. and had
interplanar spacing d002 .gtoreq.3.37.ANG.. The **anode**
materials are prepd. by mixing compds. of the alkali metal, alk.
earth metal, and/or P with a precursor for carbonaceous material and
carbonizing the precursor. The **batteries** use **Li**

contg. multi oxide **cathodes** and **Li** intercalating **anodes** composed of the above described carbonaceous materials. These **batteries** have high capacity.

IT **1310-58-3**, Potassium hydroxide, uses
(additives in carbonaceous **anode** materials and manuf.
of the **anode** materials for secondary **lithium
batteries**)
RN 1310-58-3 HCA
CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

K-OH

IC ICM H01M004-58
ICS H01M004-02; H01M010-40; C01B031-02
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **lithium battery** carbonaceous **anode**
additive; alkali metal additive carbonaceous **battery
anode**; alk earth metal carbonaceous **anode
battery**; phosphorus additive carbonaceous **anode
lithium battery**
IT **Battery anodes**
(in manuf. of carbonaceous **anode** materials contg.
alkali metals and alk. earth metals and phosphorus for secondary
lithium batteries)
IT Acrylic polymers, processes
Aminoplasts
Epoxy resins, processes
Polyimides, processes
Polysiloxanes, processes
Polyurethanes, processes
(in manuf. of carbonaceous **anode** materials contg.
alkali metals and alk. earth metals and phosphorus for secondary
lithium batteries)
IT Carbonaceous materials (technological products)
(manuf. of carbonaceous **anode** materials contg. alkali
metals and alk. earth metals and phosphorus for secondary
lithium batteries)
IT Phenolic resins, processes
(novolak; in manuf. of carbonaceous **anode** materials
contg. alkali metals and alk. earth metals and phosphorus for
secondary **lithium batteries**)
IT Pitch
(oxygen crosslinked; in manuf. of carbonaceous **anode**
materials contg. alkali metals and alk. earth metals and
phosphorus for secondary **lithium batteries**)
IT Allylic compounds
(polymers; in manuf. of carbonaceous **anode** materials

- contg. alkali metals and alk. earth metals and phosphorus for secondary **lithium batteries**)
- IT Phenolic resins, processes
(resol; in manuf. of carbonaceous **anode** materials
contg. alkali metals and alk. earth metals and phosphorus for secondary **lithium batteries**)
- IT 1305-62-0, Calcium hydroxide, uses **1310-58-3**, Potassium hydroxide, uses 1314-56-3, Phosphorus pentoxide, uses 7447-40-7, Potassium chloride, uses
(additives in carbonaceous **anode** materials and manuf. of the **anode** materials for secondary **lithium batteries**)
- IT 84-62-8, Phenyl phthalate 110-00-9D, Furan, derivs., polymers 9003-08-1, Melamine resin
(in manuf. of carbonaceous **anode** materials contg. alkali metals and alk. earth metals and phosphorus for secondary **lithium batteries**)
- L146 ANSWER 6 OF 29 HCA COPYRIGHT 2005 ACS on STN *NaOH in cath.*
126:159797 **Nonaqueous** secondary **batteries** and manufacture of **lithium** nickel mixed oxide **cathodes** for them. Ozaki, Yoshuki; Yamaura, Junichi; Kobayashi, Shigeo (Matsushita Electric Ind Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 08339806 A2 **19961224** Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-168077 19950609.
- AB **Cathodes** contg. LiNi_{1-x}MxO₂ (M = Co or Al; x = 0.05-0.30) are manufd. by adding alkali solns. to aq. solns. contg. Co salts or Al salts and Ni salts for copptn. of composite hydroxides, formation of secondary particles by gathering single crystal particles to give spherical or spheroidal shapes, mixing with **Li** compds., and heating, preferably at 600-800.degree.. The **batteries** comprise the **cathodes** and **Li**-intercalating carbon **anodes**. The **batteries** have long cycle life.
- IT **1310-73-2**, Sodium hydroxide, uses
(Co- or Al-substituted **lithium** nickel mixed oxide **cathodes** manuf. for **batteries**)
- RN 1310-73-2 HCA
CN Sodium hydroxide (Na(OH)) (9CI) (CA INDEX NAME)

Na-OH

- IC ICM H01M004-58
ICS C01G053-00; H01M004-02; H01M010-40
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST **cathode lithium** nickel aluminum oxide;
lithium nickel cobalt oxide **cathode**

batteryIT **Battery cathodes**

(Co- or Al-substituted **lithium** nickel mixed oxide
cathodes manuf. for **batteries**)

IT Secondary **batteries**

(**lithium**; Co- or Al-substituted **lithium**
nickel mixed oxide **cathodes** manuf. for
batteries)

IT 113066-89-0P, Cobalt **Lithium** Nickel oxide (Co_{0.2}LiNi_{0.8}O₂)
116327-68-5P, Cobalt **Lithium** Nickel oxide (Co_{0.3}LiNi_{0.7}O₂)
116327-69-6P, Cobalt **Lithium** Nickel oxide (Co_{0.1}LiNi_{0.9}O₂)
116327-70-9P, Cobalt **Lithium** Nickel oxide
(Co_{0.05}LiNi_{0.95}O₂)

(Co- or Al-substituted **lithium** nickel mixed oxide
cathodes manuf. for **batteries**)

IT 1310-65-2, **Lithium** hydroxide 1310-73-2, Sodium
hydroxide, uses

(Co- or Al-substituted **lithium** nickel mixed oxide
cathodes manuf. for **batteries**)

IT 61179-08-6P, Cobalt nickel hydroxide

(Co- or Al-substituted **lithium** nickel mixed oxide
cathodes manuf. for **batteries**)

IT 7786-81-4, Nickel sulfate 10124-43-3, Cobalt sulfate

(Co- or Al-substituted **lithium** nickel mixed oxide
cathodes manuf. for **batteries**)

IT 7782-42-5, Graphite, uses

(mesophase, **anodes**; Co- or Al-substituted
lithium nickel mixed oxide **cathodes** manuf. for
batteries)

L146 ANSWER ⑦ OF 29 HCA COPYRIGHT 2005 ACS on STN

125:253048 **Anode** materials for secondary **nonaqueous**

batteries, their manufacture, and the **batteries**.

Yamada, Shinichiro; Akashi, Hiroyuki; Imoto, Hiroshi; Azuma, Hideto;
Kitamura, Kenichi; Adachi, Momoe; Sasaki, Terue; Tanaka, Kohichi
(Sony Corp., Japan). PCT Int. Appl. WO 9627911 A1 **19960912**
, 49 pp. DESIGNATED STATES: W: CA, CN, JP, KR, US; RW: DE, FR, GB,
IT, NL. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1996-JP548
19960306. PRIORITY: JP 1995-74611 19950306; JP 1995-212671
19950727; JP 1995-284582 19951004; JP 1995-328390 19951122.

AB The **anode** materials are carbonized coffee bean, tea leaf,
cane, corns, fruits, straws, and/or chaff; carbonized plant polymers
contg. 0.2-20 wt.% metals, P, and/or S; or a carbonaceous material
having a diffraction peak at 2.theta. =30-32.degree. on their
CuK.alpha. X-ray powder diffraction pattern. The **anode**
materials are prepd. by firing coffee bean, tea leaf, cane, corns,
fruits, straws, and/or chaff or a mixt. contg. a cryst. or fibrous
cellulose and .gtoreq.1 of metal, P and S. The **batteries**

Kolt, Naolt

5834138
5972536

are secondary **Li batteries** using the above **anode** materials and **Li** contg. multiple oxide **cathodes**.

IT **1310-58-3**, Potassium hydroxide, uses **1310-73-2**, Sodium hydroxide, uses
(additives in cellulose mixts. for manuf. of carbonaceous **anode** materials for secondary **lithium batteries**)
RN 1310-58-3 HCA
CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

K-OH

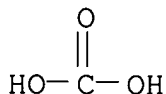
RN 1310-73-2 HCA
CN Sodium hydroxide (Na(OH)) (9CI) (CA INDEX NAME)

Na-OH

IC ICM H01M004-58
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **lithium battery** carbonaceous material
anode; plant tissue carbonized **anode lithium battery**
IT Carbonaceous materials
(carbonized plant derived materials for **anode** materials in secondary **lithium batteries**)
IT Chaff
Corn
Fruit
Rice
Straw
Sugarcane
(carbonized plant tissues for **anode** materials in secondary **lithium batteries**)
IT Banana
(peels; carbonized plant tissues for **anode** materials in secondary **lithium batteries**)
IT **Anodes**
(**battery**, carbonized plant derived materials and their manuf. of **anode** materials for secondary **lithium batteries**)
IT Coffee products
(beans, carbonized plant tissues for **anode** materials in secondary **lithium batteries**)
IT Fibers
(cellulosic, additives in cellulose mixts. for manuf. of

- carbonaceous **anode** materials for secondary **lithium batteries**)
- IT Tea products
(leaves, carbonized plant tissues for **anode** materials in secondary **lithium batteries**)
- IT Mandarin orange
(tangerine, peels; carbonized plant tissues for **anode** materials in secondary **lithium batteries**)
- IT 1305-62-0, Calcium hydroxide, uses 1309-42-8, Magnesium hydroxide **1310-58-3**, Potassium hydroxide, uses **1310-73-2**, Sodium hydroxide, uses 1343-98-2, Silicic acid 7664-38-2, Phosphoric acid, uses 7664-93-9, Sulfuric acid, uses 21645-51-2, Aluminum hydroxide, uses
(additives in cellulose mixts. for manuf. of carbonaceous **anode** materials for secondary **lithium batteries**)
- IT 9004-34-6, Cellulose, processes
(additives in cellulose mixts. for manuf. of carbonaceous **anode** materials for secondary **lithium batteries**)

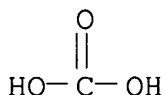
- L146 ANSWER (8) OF 29 HCA COPYRIGHT 2005 ACS on STN *Na₂CO₃ in graphite anode.*
125:119576 Secondary **nonaqueous batteries** with **anodes** containing carbonate additives. Inoe, Kaoru; Ozaki, Yoshuki; Koshina, Hide; Morita, Teruyoshi (Matsushita Electric Ind Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 08138743 A2 **19960531** Heisei, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1994-279120 19941114.
- AB **Li batteries** use **anodes** contg.
.gtoreq.1 carbonate salts of alkali metals, alk. earth metals, and transition metals. These **batteries** have suppressed dendrite growth.
- IT **497-19-8**, Sodium carbonate, uses
(graphite **anodes** contg. carbonate salt additives in secondary **lithium batteries** for dendrite growth prevention)
- RN 497-19-8 HCA
- CN Carbonic acid disodium salt (8CI, 9CI) (CA INDEX NAME)



- IC ICM H01M010-40
ICS H01M004-02; H01M004-62
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST **lithium battery anode** carbonate salt
additive; alkali metal carbonate **lithium battery**
anode; alk earth carbonate **lithium battery**
anode; transition metal carbonate **lithium**
battery anode
- IT Alkali metal compounds
Alkaline earth compounds
Transition metal compounds
(carbonates; graphite **anodes** contg. carbonate salt
additives in secondary **lithium batteries** for
dendrite growth prevention)
- IT **Anodes**
(**battery**, graphite **anodes** contg. carbonate
salt additives in secondary **lithium batteries**
for dendrite growth prevention)
- IT 7782-42-5, Graphite, uses
(graphite **anodes** contg. carbonate salt additives in
secondary **lithium batteries** for dendrite
growth prevention)
- IT **497-19-8**, Sodium carbonate, uses 554-13-2, **Lithium**
carbonate
(graphite **anodes** contg. carbonate salt additives in
secondary **lithium batteries** for dendrite
growth prevention)
- L146 ANSWER (9) OF 29 HCA COPYRIGHT 2005 ACS on STN Na_2CO_3
124:122131 Secondary **nonaqueous battery**. Takahashi,
Osamu; Tanaka, Mitsutoshi (Fuji Photo Film Co., Ltd., Japan). Eur.
Pat. Appl. EP 689255 A2 **19951227**, 35 pp. DESIGNATED
STATES: R: DE, FR, GB, IT. (English). CODEN: EPXXDW.
APPLICATION: EP 1995-107873 19950523. PRIORITY: JP 1994-108287
19940523; JP 1994-235244 19940929.
- AB An enclosed **nonaq. battery** includes a group of
cathodes and **anodes** allowing absorption and
release of a light metal and separators accommodated in a closed-end
armoring can together with a **nonaq.** electrolyte and an
opening of the armoring can is closed by an insulating gasket
positioned around the inner periphery of the opening of the can and
a closing lid fitted in and supported by the gasket and
simultaneously serving as a pos. or neg. terminal. The closing lid
comprises an explosion-proof valve capable of deforming towards the
direction opposite to the group of **electrodes** in response
to an increase in the internal pressure of the **battery**, a
terminal cap provided with vent holes and arranged at the side of
the explosion-proof valve opposed to the group of **electrodes**

and a nonreverse type switch which is positioned between the explosion-proof valve and the terminal cap and serves to shut-off the elec. connection between the terminal cap and the **cathode** or **anode** when the temp. of the **battery** or the pressure in the **battery** is increased. The **battery** construction permits shutting off of the elec. connections within the **battery** when its temp. and/or internal pressure increase.

IT **497-19-8**, Sodium carbonate, uses
 (alkali metal- and esp. **lithium-ion nonaq.**
battery cathodes contg.)
 RN 497-19-8 HCA
 CN Carbonic acid disodium salt (8CI, 9CI) (CA INDEX NAME)



●2 Na

IC ICM H01M002-12
 ICS H01M002-34; H01M004-62
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST **battery** secondary **nonaq** safety
 IT Electric switches and switching
 (alkali metal- and esp. **lithium-ion nonaq.**
batteries contg. shape memory alloy)
 IT **Batteries**, secondary
 (design of safe **nonaq.** alkali metal- and esp.
lithium-ion)
 IT Safety
 (design of secondary alkali metal- and esp. **lithium-ion**
nonaq. batteries for)
 IT 471-34-1, Calcium carbonate, uses **497-19-8**, Sodium
 carbonate, uses 513-77-9, Barium carbonate 546-93-0, Magnesium
 carbonate 584-08-7, Potassium carbonate 584-09-8, Rubidium
 carbonate
 (alkali metal- and esp. **lithium-ion nonaq.**
battery cathodes contg.)

L146 ANSWER (10) OF 29 HCA COPYRIGHT 2005 ACS on STN *for cathode.*
 123:291839 **Nonaqueous lithium batteries**
 with improved **cathodes**. Uehara, Mayumi; Shoji, Yoshihiro;
 Yamazaki, Mikya; Nishio, Koji; Saito, Toshihiko; Maeda, Takeshi
 (Sanyo Electric Co, Japan). Jpn. Kokai Tokkyo Koho JP 07192721 A2

19950728 Heisei, 10 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1994-257623 19940926. PRIORITY: JP 1993-314533
19931118.

- AB The **batteries** consisting of **Li anodes**
and **cathode** masses contg. **Li**-transition metal
mixed oxide $\text{Li}_x\text{Ni}_{1-y}\text{M}_y\text{O}_z$ ($0 < x < 1.3$, $0.1 \leq y \leq 1$, $1.8 < z < 2.2$, M
= Co or Co-contg. transition metals) are treated with 0.1-20 mol%
(to the **cathode** masses) salts and/or hydroxides of Na, Mg,
Al, K, Ca, Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, and/or Zn. The salts
may contain C (e.g., as carbonates). Preferably, the salts are Co
carbonate and/or Ni carbonate. The **batteries** have
high-temp. storage stability.
- IT **1310-58-3**, Potassium hydroxide, uses
(**cathodes** contg. **lithium**-transition metal
mixed oxide added with metal salts and/or hydroxides for
nonaq. batteries)
- RN 1310-58-3 HCA
- CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

K-OH

- IC ICM H01M004-02
ICS H01M004-58; H01M010-40
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST **lithium** transition metal oxide **cathode**;
battery cathode transition metal oxide; carbonate
metal oxide **cathode battery**; hydroxide metal
oxide **cathode battery**
- IT Hydroxides
(**cathodes** contg. **lithium**-transition metal
mixed oxide added with metal salts and/or hydroxides for
nonaq. batteries)
- IT Carbonates, uses
(metal; **cathodes** contg. **lithium**-transition
metal mixed oxide added with metal salts and/or hydroxides for
nonaq. batteries)
- IT **Cathodes**
(**battery, cathodes** contg. **lithium**
-transition metal mixed oxide added with metal salts and/or
hydroxides for **nonaq. batteries**)
- IT 7439-93-2, **Lithium**, uses
(**anode; cathodes** contg. **lithium**
-transition metal mixed oxide added with metal salts and/or
hydroxides for **nonaq. batteries**)
- IT 101920-93-8P, Cobalt **lithium** nickel oxide ($\text{Co}_{0.5}\text{LiNi}_{0.5}\text{O}_2$)
(**cathode; cathodes** contg. **lithium**
-transition metal mixed oxide added with metal salts and/or

hydroxides for **nonaq. batteries**)

IT 127-08-2, Potassium acetate 583-52-8, Potassium oxalate
584-08-7, Potassium carbonate 1305-62-0, Calcium hydroxide, uses
1310-58-3, Potassium hydroxide, uses 1344-67-8, Copper
chloride 1344-69-0, Copper hydroxide 3333-67-3, Nickel carbonate
7447-40-7, Potassium chloride, uses 7542-09-8, Cobalt carbonate
7647-14-5, Sodium chloride, uses 7786-30-3, Magnesium chloride,
uses 11113-66-9, Iron hydroxide 12054-48-7, Nickel hydroxide
12626-43-6, Chromium hydroxide 12626-88-9, Manganese hydroxide
12651-23-9, Titanium hydroxide 12672-51-4, Cobalt hydroxide
17674-34-9, Scandium hydroxide 20427-58-1, Zinc hydroxide
21645-51-2, Aluminum hydroxide, uses 102857-58-9, Vanadium
hydroxide

(**cathodes** contg. **lithium**-transition metal
mixed oxide added with metal salts and/or hydroxides for
nonaq. batteries)

L146 ANSWER 11 OF 29 HCA COPYRIGHT 2005 ACS on STN *Kolt treated coke anode.*
121:234669 Secondary **nonaqueous lithium**

batteries and alkali or alkaline earth metal modified coke
anodes of the **batteries**. Fujii, Masaki; Nakagawa,
Takaisa; Ueno, Koji; Fujimoto, Masahisa; Yoshinaga, Noryuki; Nishio,
Koji; Furukawa, Sanehiro (Koa Oil Co Ltd, Japan; Sanyo Electric Co).
Jpn. Kokai Tokkyo Koho JP 06187986 A2 **19940708** Heisei, 6
pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1992-170235
19920603.

AB The **batteries** use coke having 0 contg. functional groups
and active centers for their **anodes**, where the activities
of the functional groups and active centers are suppressed by
binding with alkali or alk. earth metals. **Li**
batteries using these **anodes** have high capacity
and long shelf and cycle lives.

IT **1310-58-3**, Potassium hydroxide, uses
(secondary **nonaq. lithium batteries**
and alkali or alk. earth metal modified coke **anodes** of
the **batteries**)

RN 1310-58-3 HCA

CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

K-OH

IC ICM H01M004-58

ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **lithium battery** coke **anode**

IT Coke

(potassium hydroxide treated; secondary **nonaq.**

- lithium batteries** and alkali or alk. earth metal modified coke **anodes** of the **batteries**)
- IT **Batteries**, secondary
(secondary **nonaq. lithium batteries** and alkali or alk. earth metal modified coke **anodes** of the **batteries**)
- IT Alkali metals, uses
Alkaline earth metals
(secondary **nonaq. lithium batteries** and alkali or alk. earth metal modified coke **anodes** of the **batteries**)
- IT **Anodes**
(**battery**, alkali and alkali or alk. earth metal modified coke **anodes** of secondary **lithium batteries**)
- IT **1310-58-3**, Potassium hydroxide, uses
(secondary **nonaq. lithium batteries** and alkali or alk. earth metal modified coke **anodes** of the **batteries**)
- L146 ANSWER (12) OF 29 HCA COPYRIGHT 2005 ACS on STN
121:209267 **Nonaqueous** secondary **batteries** and **anode** materials for these **batteries**. Fujii, Masaki; Nakagawa, Takaisa; Ueno, Koji; Fujimoto, Masahisa; Yoshinaga, Noryuki; Nishio, Koji; Furukawa, Sanehiro (Koa Oil Co Ltd, Japan; Sanyo Electric Co). Jpn. Kokai Tokkyo Koho JP 06187987 A2 **19940708** Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1992-170236 19920603. Kolt
- AB The **batteries** use coke of BET sp. surface area .gtoreq.100 m2/g and spacing of (00) planes .gtoreq.3.37 .ANG. as **anode** materials. The coke with crystallite size in the direction of c axis .ltoreq.600 .ANG. is also claimed. The coke may be prepd. by activation for removing tar hydrocarbons from the pores. The coke can intercalates large amt. of **Li**, and the **batteries** show high discharging capacity.
- IT **1310-58-3**, Potassium hydroxide, uses
(in activation of coke for hydrocarbon removal from pores for use as **anodes** for **nonaq.**-electrolyte **batteries**)
- RN 1310-58-3 HCA
CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)
- K-OH
- IC ICM H01M004-58
ICS H01M004-02; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **lithium battery anode** coke; activation
 coke **lithium battery anode**
 IT Coke
 (for **lithium anodes** of **nonaq**
 .-electrolyte **batteries**)
 IT **Anodes**
 (**battery**, activation of coke for hydrocarbon removal
 from its pores for **nonaq**.-electrolyte)
 IT 7439-93-2, **Lithium**, uses
 (coke for **nonaq**.-electrolyte **battery**
anodes of)
 IT **1310-58-3**, Potassium hydroxide, uses
 (in activation of coke for hydrocarbon removal from pores for use
 as **anodes** for **nonaq**.-electrolyte
batteries)

L146 ANSWER (13) OF 29 HCA COPYRIGHT 2005 ACS on STN *NaOH treated carbon*
 120:249343 **Anode** materials and secondary **batteries**
 using them. Suzuki, Tatsuhiko; Tsukamoto, Jun (Toray Industries,
 Japan). Jpn. Kokai Tokkyo Koho JP 06020690 A2 **19940128**
 Heisei, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP
 1992-180078 19920707.

AB The **anode** materials comprise carbonaceous materials with
 amorphous surfaces and/or surfaces treated by surface oxidn.
 Secondary **batteries** with these **anodes** use
nonaq. electrolytes contg. **Li** salts (electrolytes)
 dissolved in **nonaq**. solvents. The **batteries**
 have high charging and discharging capacities.

IT **1310-73-2**, Sodium hydroxide, reactions
 (in oxidn. of carbonaceous materials for amorphization of
anodes for secondary **batteries**)

RN 1310-73-2 HCA

CN Sodium hydroxide (Na(OH)) (9CI) (CA INDEX NAME)

Na-OH

IC ICM H01M004-58

ICS C01B031-02; H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery anode** carbonaceous material; oxidn
 carbonaceous material **battery anode**;
 amorphization carbonaceous material **battery anode**
 ; **lithium battery anode** carbonaceous
 material

IT Carbonaceous materials
 (amorphization of surfaces of, by oxidn., for **anodes**
 for secondary **batteries**)

- IT Amorphization
(of carbonaceous material surfaces, by oxidn., for **anodes**
for secondary **batteries**)
- IT Oxidation, electrochemical
(of carbonaceous material surfaces, for amorphization, for
anodes for secondary **batteries**)
- IT **Anodes**
(**battery**, carbonaceous materials, with oxidized and
amorphized surfaces)
- IT Oxidation
(gas-phase, of carbonaceous material surfaces, for amorphization,
for **anodes** for secondary **batteries**)
- IT Carbon fibers, reactions
(graphite, amorphization of surfaces of, by oxidn., for
anodes for secondary **batteries**)
- IT Oxidation
(liq.-phase, of carbonaceous material surfaces, for
amorphization, for **anodes** for secondary
batteries)
- IT 7439-93-2, **Lithium**, uses
(**anodes** for secondary **batteries** contg.,
amorphization of carbonaceous material surfaces for)
- IT 7440-44-0 7782-42-5
(carbon fibers, graphite, amorphization of surfaces of, by
oxidn., for **anodes** for secondary **batteries**)
- IT **1310-73-2**, Sodium hydroxide, reactions 7664-93-9, Sulfuric
acid, reactions
(in oxidn. of carbonaceous materials for amorphization of
anodes for secondary **batteries**)

L146 ANSWER (14) OF 29 HCA COPYRIGHT 2005 ACS on STN No
118:84488 Organic-electrolyte secondary **battery**. Sekai, Koji
(Sony Corp., Japan). Jpn. Kokai Tokkyo Koho JP 04272668 A2
19920929 Heisei, 6 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1991-53655 19910227.

AB The **battery** comprises an inorg. compd. (as a
cathode active material) whose surface is chem. modified
with an org. compd. The treatment inhibits OH groups (on the active
material surface) reacting with the electrolyte, and prevent crystal
structure deformation of the active material. Thus, LiCoO₂ was
treated with **NaOH** and isopropyltri[(N-aminoethyl)titanate]
coupling agent to give a **cathode** active material. A
Li battery using the **cathode**, **Li**
anode, and LiPF₆-dissolved propylene carbonate-1,2-
dimethoxyethane electrolyte showed resistance to voltage drop by
repeated charge-discharge cycling.

IC ICM H01M010-40
ICS H01M004-02

- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST **battery nonaq** electrolyte **cathode**
 surface modification; **lithium battery**
cathode surface modification; cobalt **lithium** oxide
battery cathode; hydroxy removal **lithium**
battery cathode
- IT Coupling agents
 (in hydroxy group removal from org. compd. surfaces, for
cathode active materials for **nonaq.**-electrolyte
 secondary **batteries**)
- IT Hydroxyl group
 (removal of, from **cathode** active material surfaces, for
 org.-electrolyte secondary **batteries**)
- IT **Cathodes**
 (**battery**, **nonaq.**-electrolyte, hydroxy group
 removal from surfaces of, by coupling with org. compd.)
- IT 65380-84-9, Isopropyl[(N-aminoethyl)aminoethyl]titanate
 (coupling agent, **cathode** active materials treated with,
 for surface hydroxy removal, for secondary **batteries**)
- IT 12190-79-3
 (hydroxy group removal from surface of, for **cathodes**
 for **lithium** secondary **batteries**)
- L146 ANSWER (15) OF 29 HCA COPYRIGHT 2005 ACS on STN *KOH treated.*
 110:138702 Secondary **nonaqueous batteries** with
 active-carbon **cathode**. Morimoto, Takeshi; Yoshida, Naoki
 (Asahi Glass Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 63264870
 A2 **19881101** Showa, 4 pp. (Japanese). CODEN: JKXXAF.
 APPLICATION: JP 1987-96334 19870421.
- AB The **batteries** have **Li-Al anodes** and
cathodes prepd. from active C powder. The active C powder
 preferably has a sp. surface area $A = 2000-3500 \text{ m}^2/\text{g}$, apparent d. $d = 0.2-1.0 \text{ g/mL}$, and pore vol. $V = 0.5-3.0 \text{ mL/g}$. Thus, -40-mesh
 petroleum coke was mixed at 1:3 with **KOH**, heated at
 385.degree. for 1 h and at 840.degree. for 2 h in N, cooled, washed,
 and vacuum dried at 110.degree. to obtain an active C having $A =$
 $3000 \text{ m}^2/\text{g}$, $d = 0.308 \text{ g/mL}$, and $V = 1.0 \text{ mL/g}$. A **battery**
 using a **Li-50 at.% Al anode** and a
cathode contg. the prepd. active C 70, carbon black 20, and
 PTFE 10% had capacities 4.45 and 4.29 mA-h at the 5th and 50th
 charge-discharge cycles, resp., when cycled at 1.0 mA between 1.0
 and 3.5 V, vs. 3.05 and 2.44 mA-h for a **battery** using
 active carbon having $A = 1500 \text{ m}^2/\text{g}$ and prepd. from coconut shell.
- IC ICM H01M004-58
 ICS H01M004-40; H01M004-46
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST **battery** active carbon **cathode**; petroleum coke
 activation carbon **cathode**

IT **Cathodes**

(**battery**, active carbon, manuf. of, from petroleum coke)

IT Coke

(petroleum, activation of, for active-carbon **cathode** in **batteries**)

IT 7440-44-0, Carbon, uses and miscellaneous

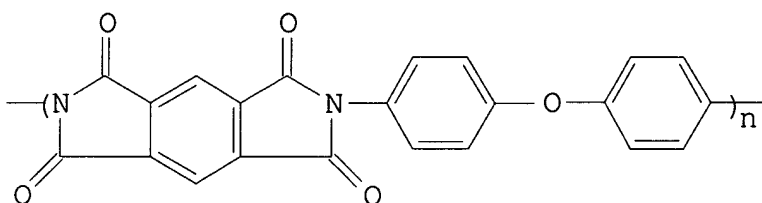
(activated, **cathodes**, from petroleum coke, for **batteries**)

L146 ANSWER (16) OF 29 HCA COPYRIGHT 2005 ACS on STN

110:79327 **Nonaqueous**-electrolyte load-leveling **battery** No

. Morimoto, Takeshi; Yoshida, Naoki (Asahi Glass Co., Ltd., Japan).
Jpn. Kokai Tokkyo Koho JP 63216272 A2 **19880908** Showa, 5
pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1987-46815
19870303.

GI



I

AB The title **battery** has active C-based **cathodes** and **anodes** of partly graphitized carbonaceous material prepd. from arom. N-contg. condensation polymer. The carbonaceous material preferably has a H:C at. ratio $r < 0.35$ and the spacing of (002) planes $d > 3.37$.ANG., and is preferably prepd. from arom. polyimide, polyamide, polyamidoimide, polyoxadiazole, and polybenzimidazole. The **cathode** is prepd. from active C having a sp. surface area $A = 1500-3500$ m²/g. Thus, polymer I was heated at 2000.degree. for 1 h in N to obtain a carbonaceous material having $r = 0.09$ and $d = 3.443$.ANG., which was mixed with polyethylene, and pressed to form an **anode**. Petroleum coke was ground to -40 mesh, coated with **KOH**, presintered at 385.degree. for 1 h and sintered at 840.degree. for 2 h in N, cooled, washed, and dried at 110.degree. in vacuum to obtain active C having $A = 3000$ m²/g, which was mixed with carbon black and PTFE, rolled into a sheet, expanded for 1.1 times in 1 direction at 300.degree., and punched to obtain a **cathode**. A **battery** was prepd. by using the prepd. **cathode**, a 1M LiClO₄/propylene carbonate electrolyte, and the prepd. **anode** precharged in the same electrolyte with a **Li**

counterelectrode. When cycled at 0.5 mA between 1.0 and 3.5 V, the capacity of the **battery** decreased from 3.30 mA-h at the 5th cycle to 3.04 mA-h at the 50th cycle, vs. a decrease from 2.89 to 0.72 mA-h for a **battery** with the **anode** contg. carbonaceous material prepd. from PVC and having $r = 0.04$ and $d = 3.405$.ANG..

IC ICM H01M010-40

ICS H01M004-02; H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST load leveling **battery anode; lithium**
graphite carbonaceous **anode**

IT **Anodes**

(**battery, lithium**-contg., graphitized
carbonaceous, **nonaq.** load-leveling)

IT 7439-93-2, **Lithium**, uses and miscellaneous
(**anodes** contg., graphitized carbonaceous, for
nonaq. load-leveling **batteries**)

IT 24938-64-5 25036-53-7 28576-59-2
(pyrolysis of, for **anodes** for **lithium**
nonaq. load-leveling **batteries**)

L146 ANSWER (17) OF 29 HCA COPYRIGHT 2005 ACS on STN

WJ

108:170848 **Nonaqueous batteries** and manufacture of
their **cathode**-active mass. Yasuda, Hideo (Japan Storage
Battery Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 63019760 A2
19880127 Showa, 6 (Japanese). CODEN: JKXXAF. APPLICATION:
JP 1986-163233 19860710.

AB The title **batteries** have **cathodes** of Ni-Co
oxyhydroxide mixt. contg. 20-75 wt.% Co and propylene carbonate or
.gamma.-butyrolactone as electrolyte solvent. Thus, a pH 1.0 mixt.
of Co and Ni nitrates (d20. 1.60) having a Co/(Co + Ni) wt. ratio =
50% was heated at 230.degree. for 1 h, mixed with a **NaOH**
soln. (d. 1.20), the formed ppt. was washed, dried at 110.degree.,
pulverized, elec. oxidized in a **KOH** soln. (d. 1.05) for 5
h at a c.d. of 0.1 A/g ppt., the oxidized ppt. was dried at
130.degree. for 2 h, mixed with 10 graphite and 5% PTFE, and pressed
to obtain a **cathode** disk. A **battery** using this
cathode, a **Li anode**, and a 1M
LiClO4/propylene carbonate showed an output voltage of 2.4-2.7 V
when discharged through a 20-k.OMEGA. load and a 20% decrease in
discharge duration after 15 charge-discharge cycles between 1.5 and
4.5 V at 2 mA, whereas **batteries** using **cathode**
active mass dried at <125.degree. or >225.degree. had shorter
discharge duration.

IC ICM H01M004-52

ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **cathode battery** nickel cobalt oxyhydroxide

- IT **Cathodes**
(**battery**, nickel-cobalt oxyhydroxide, for **nonaq. batteries**)
- IT 12016-80-7, Cobalt oxyhydroxide
(**cathode** contg., nickel oxyhydroxide, for **nonaq. batteries**)
- IT 55070-72-9
(**cathodes**, contg. cobalt oxyhydroxide, for **nonaq. batteries**)
- IT 7681-52-9, Sodium hypochlorite 7727-21-1
(oxidizing agent, in nickel-cobalt oxyhydroxide manuf., for **battery cathodes**)

- L146 ANSWER (18) OF 29 HCA COPYRIGHT 2005 ACS on STN 20
108:41130 Vanadium bronze **cathodes** for **lithium batteries**. Okada, Shigeto; Ootsuka, Hideaki; Okada, Takeshi (Nippon Telegraph and Telephone Public Corp., Japan). Jpn. Kokai Tokkyo Koho JP 62195854 A2 **19870828** Showa, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1986-34981 19860221.
- AB V bronze Na_xV₂O₅ (x = 0.15-0.4) is used as **cathode** active material for **Li batteries**. Thus, a 70:25:5 mixt. of Na_{0.3}V₂O₅ (prepd. from **Na₂CO₃** and V₂O₅), acetylene black, and PTFE was pelletized to obtain **cathodes**. A **battery** having the prepd. **cathode**, a **Li anode**, and an electrolyte of 1.5N LiAsF₆/2-methyltetrahydrofuran showed longer cycle life than a **battery** using a V₂O₅ **cathode**.
- IC ICM H01M004-58
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST sodium vanadium oxide **battery cathode**
- IT **Cathodes**
(**battery**, sodium vanadium oxide)
- IT 107591-89-9 112286-63-2 112286-64-3
(**cathodes**, for **nonaq. batteries**)

- L146 ANSWER (19) OF 29 HCA COPYRIGHT 2005 ACS on STN 20
107:180171 Secondary **batteries**. Shishikura, Riichi; Konuma, Hiroshi; Nakamura, Hidenori; Sakai, Toshiyuki; Takeuchi, Masataka; Kobayashi, Masao (Showa Denko K. K., Japan; Hitachi, Ltd.). Jpn. Kokai Tokkyo Koho JP 62150657 A2 **19870704** Showa, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1985-290443 19851225.
- AB **Li** is electrochem. deposited on Al or Al alloy to form an **anode** alloy having a **Li:Al** at. ratio $r < 0.6$ for use in secondary **nonaq. batteries**. The deposition can be carried out on only 1 side of Al or Al alloy to form the **anode** with the other side serving as an **anode** collector. A 120- μ . Al plate was pretreated with aq. **NaOH**, cut into a 15-mm-diam. piece, connected with a

Ni collector on 1 side, and **Li** was deposited on the opposite side from a **Li electrode** at 1 mA/cm² to $r = 0.5$ with a glass-fiber separator in between. The separator was impregnated with a 1M LiBF₄/1:1 (vol.) propylene carbonate-MeOC₂H₄OMe electrolyte. A **battery** using this alloy as **anode**, a polyaniline **cathode**, and a 1M LiBF₄/1:1 (vol.) propylene carbonate-MeOC₂H₄OMe electrolyte had a lifetime (current efficiency decreased to 50%) of 425 charging-discharging cycles and an energy d. of 121 W-h/kg (**cathode + anode**) vs. 115 cycles and 117 W-h/kg for a **battery** using on **anode** prepd. by pressing com.

Al-50 at.% **Li** alloy powders.

IC ICM H01M004-40

ICS H01M004-02; H01M004-04

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56

ST **battery** aluminum **lithium** alloy **anode**

IT **Anodes**

(**battery**, aluminum-**lithium** alloy for, manuf.
by electrochem. deposition of)

IT 37197-42-5P 66594-53-4P, Aluminum 67, **lithium** 33(at.)

110869-98-2P 110869-99-3P

(**anodes**, manuf. of, by electrochem. deposition, for
secondary **batteries**)

L146 ANSWER (20) OF 29 HCA COPYRIGHT 2005 ACS on STN No

107:26112 Secondary **nonaqueous batteries**. Sakai,
Toshiyuki; Shishikura, Riichi; Konuma, Hiroshi; Nakamura, Hidenori;
Takeuchi, Masataka; Kobayashi, Masao (Showa Denko K. K., Japan;
Hitachi, Ltd.). Jpn. Kokai Tokkyo Koho JP 62093863 A2
19870430 Showa, 13 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1985-233178 19851021.

AB A secondary **nonaq. battery** has a **cathode**
of polypyrroles; an **anode** of **Li**, a **Li**
alloy, a conductive polymer, or a combination of the polymer with
Li or **Li** alloy; and an electrolyte of an alkali
metal salt dissolved in an org. solvent with the **cathode**
being treated with an alkali. A pair of Pt **electrode** were
immersed in a mixt. of pyrrole 40, Na laurylsulfonate 40,
poly(ethylene glycol) 20, distd. H₂O 1600 wt. parts, and heptane 50
mL, a 2-A current was passed between the **electrodes** for 30
min to obtain a polypyrrole film on 1 **electrode**, the film
was polished, washed with distd. H₂O and heptane, dried at
50.degree. in vacuum for 24 h to form a film having a smooth 1st
layer on the **electrode** side, a porous 2nd layer, and a top
3rd layer less porous than the 2nd layer. The film was removed from
the **electrode**, extd. with distd. H₂O in a Soxhlet
extractor for 15 h, dried at 50.degree. in vacuum for 24 h, immersed

twice in 28% NH₄OH for 3 h with 15 min ultrasonic treatment each time, washed with distd. water, dried at 50.degree. for 1 h and at 80.degree. in vacuum for 12 h, and cut to form a 20-mm-diam.

cathode. A **battery** using this **cathode**, a **Li anode**, and 0.8M LiPF₆-2-Me THF electrolyte was cycled at 1.0-mA/cm² charging to a 45 mol% doping of the **cathode** and 1.5-mA/cm² discharging to 1.5 V cutoff. The **battery** had a lifetime of 368 cycles (efficiency decreased to 50%), a max. efficiency of 100%, an energy d. of 452 W-h/kg, and a self discharge ratio of 3.8% after a 48-h standing whereas a **battery** using a **cathode** not treated with NH₄OH had a lifetime of 220 cycles, an energy d. of 388 W-h/kg, and a self discharge ratio of 6.8%.

IT 1310-73-2, Sodium hydroxide, uses and miscellaneous
(**cathodes** from polypyrroles treated by, for
nonaq. secondary **batteries**)

RN 1310-73-2 HCA

CN Sodium hydroxide (Na(OH)) (9CI) (CA INDEX NAME)

Na-OH

IC ICM H01M004-60

ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

ST **battery** polypyrrole **cathode** ammonia treatment

IT **Cathodes**

(**battery**, alk.-treated polypyrroles for, manuf. of)

IT 1310-73-2, Sodium hydroxide, uses and miscellaneous
1336-21-6, Ammonium hydroxide

(**cathodes** from polypyrroles treated by, for
nonaq. secondary **batteries**)

IT 30604-81-0P, Polypyrrole 72945-64-3P, N-Methylpyrrole-pyrrole
copolymer

(**cathodes**, alk.-treated, manuf. of, for **nonaq**
. secondary **batteries**)

L146 ANSWER (22) OF 29 HCA COPYRIGHT 2005 ACS on STN

~3

104:12276 **Lithium battery**. (Institute for Production
and Development Science, Japan). Jpn. Kokai Tokkyo Koho JP 60124354
A2 19850703 Showa, 3 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1983-231161 19831206.

AB A **nonaq.** **battery** has a **Li anode** and **cathode** active material composed of
CuCoO₂. CuCoO₂ is an anhyd. anisotropic semiconductor that provides
a good ion diffusion rate when oriented by pressing, and the
battery has high capacity, good discharge property, and

stable voltage. Thus, a 1:1 mol. ratio mixt. of Cu₂O and Co oxyhydroxide was mixed with .gtoreq.1M NaOH, hydrothermally treated (330.degree., 12 h), and rapidly cooled to obtain a fine ppt. (diam. 0.1-2.mu.; hexagonal crystals) of CuCoO₂, which was washed and dried. A **Li battery** using CuCoO₂ **cathode** showed satisfactory behavior.

IC ICM H01M004-58
ICS H01M006-16
CC 72-3 (Electrochemistry)
ST **lithium battery cathode** copper
cobaltate; copper cobalt oxide **battery cathode**
IT **Batteries**, primary
(**lithium**-copper cobaltate, **nonaq.**)
IT **Cathodes**
(**battery**, copper cobalt oxide)
IT 7439-93-2, uses and miscellaneous
(**anode**, in **nonaq. battery** with
copper cobaltate)
IT 12272-76-3P
(**cathode**, prepn. of, for **lithium**
nonaq. battery)
IT 7791-03-9
(**lithium**-copper cobaltate **nonaq.**
battery contg.)

L146 ANSWER (23) OF 29 HCA COPYRIGHT 2005 ACS on STN N 3
104:12275 **Lithium battery**. (Institute for Production
and Development Science, Japan). Jpn. Kokai Tokkyo Koho JP 60124355
A2 19850703 Showa, 3 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1983-231162 19831206.

AB A **nonaq. battery** has a **Li**
anode and **cathode** active material composed of
CuFeO₂. CuFeO₂ is an anhyd. anisotropic semiconductor that provides
good ion transport when oriented by pressing, and the
battery has high capacity, good discharge property, and
stable voltage. Thus, a 1:1 mol. ratio mixt. of Cu₂O and Fe
oxyhydroxide was mixed with .gtoreq.1M NaOH,
hydrothermally treated (330.degree., 12 h), and rapidly cooled to
obtain a fine ppt. (diam. 0.1-2 .mu.; hexagonal crystals) of CuFeO₂,
which was washed and dried. A **Li battery** using
CuFeO₂ as **cathode** active material showed satisfactory
performance.

IC ICM H01M004-58
ICS H01M006-16
CC 72-3 (Electrochemistry)
ST **lithium battery cathode** copper
ferrate; copper iron oxide **battery cathode**
IT **Batteries**, primary

(**lithium-copper ferrate, nonaq.**)
IT **Cathodes**
(**battery**, copper iron oxide)
IT 7439-93-2, uses and miscellaneous
(**anode**, in **nonaq. battery** with
copper ferrate)
IT 12018-75-6P
(**cathode**, prepn. of, for **lithium**
nonaq. battery)
IT 7791-03-9
(**lithium-copper ferrate nonaq.**
battery contg.)

No

L146 ANSWER (24) OF 29 HCA COPYRIGHT 2005 ACS on STN
104:12274 **Lithium battery**. (Institute for Production
and Development Science, Japan). Jpn. Kokai Tokkyo Koho JP 60124356
A2 **19850703** Showa, 3 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1983-231163 19831206.

AB A **nonaq. battery** has a **Li**
anode and **cathode** active material composed of
AgCoO₂. AgCoO₂ is an anhyd. anisotropic semiconductor that provides
good ion transport when oriented by pressing, and the
battery has high capacity, good discharge property, and
stable voltage. Thus, a 1:1 mol. ratio mixt. of Ag₂O and Co
oxyhydroxide was mixed with .gtoreq.1M **NaOH**,
hydrothermally treated (330.degree., 12 h), and rapidly cooled to
obtain fine ppt. (diam. 0.1-0 .mu.; hexagonal crystals) of AgCoO₂,
which was washed and dried. A **Li battery** using
AgCoO₂ as the **cathode** active material showed satisfactory
performance.

IC ICM H01M004-58
ICS H01M006-16
CC 72-3 (Electrochemistry)
ST **lithium battery cathode** silver
cobaltate; silver cobalt oxide **battery cathode**
IT **Batteries**, primary
(**lithium-silver cobaltate, nonaq.**)
IT **Cathodes**
(**battery**, cobalt silver oxide)
IT 7439-93-2, uses and miscellaneous
(**anode**, in **nonaq. battery** with
silver cobaltate)
IT 12271-25-9P
(**cathode**, prepn. of, for **lithium**
nonaq. battery)
IT 7791-03-9
(**lithium-silver cobaltate nonaq.**
battery contg.)

L146 ANSWER (25) OF 29 HCA COPYRIGHT 2005 ACS on STN No
101:195305 **Nonaqueous-electrolyte battery.**

(Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai
Tokkyo Koho JP 59134560 A2 **19840802** Showa, 2 pp.
(Japanese). CODEN: JKXXAF. APPLICATION: JP 1983-9742 19830124.

AB A **battery** contains an **anode** formed by bonding
anode active material (e.g. **Li**) to a Ni sheet, a
nonwoven polymer cloth separator impregnated with electrolyte soln.
contg. .gamma.-butyrolactone, and a **cathode** formed by
bonding fluorinated C on Al sheet previously freed from surface
oxide by acid or alkali treatment. The **battery** has a
small internal resistance and provides stable operation. Thus, a
battery prepd. by using a graphite fluoride **cathode**
formed on Al plate cleaned by immersion in 0.5% **NaOH** for
10 min (29 .times. 56 mm) showed an internal resistance of 1.5-2 vs.
3.5-6 .OMEGA. for a control using nontreated Al plate. Bonding of
active material to Al plate was also enhanced by the pretreatment.

IC H01M004-06; H01M004-66

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery nonaq cathode** aluminum;
cathode graphite fluoride aluminum

IT **Batteries**, primary
(**lithium**-graphite fluoride, **nonaq**
.-electrolyte)

IT **Cathodes**
(**battery**, graphite fluoride, on aluminum, **nonaq**
.-electrolyte)

IT 7429-90-5, uses and miscellaneous
(**cathodes** with substrates of pretreated, graphite
fluoride, **battery**, **nonaq**.-electrolyte)

L146 ANSWER (26) OF 29 HCA COPYRIGHT 2005 ACS on STN
93:98492 **Batteries** with **nonaqueous** electrolyte.

Furukawa, Sanehiro; Moriwaki, Kazuo (Sanyo Electric Co., Ltd.,
Japan). Jpn. Kokai Tokkyo Koho JP 55046288 **19800331**
Showa, 2 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP
1978-120629 19780928.

AB The title **batteries** contain a **Li** or **Mg**
anode and an Fe-Co oxide **cathode**. Thus, a soln.
contg. $\text{Fe}_2(\text{SO}_4)_3$ and Co sulfate was treated with a **NaOH**
soln. to obtain an Fe and Co oxide coppt. The coppt. was mixed with
acetylene black and fluorocarbon and pressed on the **battery**
container to prep. a **cathode**. The **anode** was
prepd. from a **Li** sheet and Ni mesh. The electrolyte
consisted of propylene carbonate, $\text{MeOCH}_2\text{CH}_2\text{OMe}$, and LiClO_4 . The
output voltage of the **battery** was higher than that of a
battery using an Fe oxide **cathode**.

IC H01M004-06; H01M006-16
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery lithium** org electrolyte; iron cobalt
oxide **battery cathode**
IT **Batteries**, primary
(**lithium**, org.-electrolyte)
IT 12052-28-7
(**cathodes**, in org.-electrolyte **battery** with
lithium anode)

L146 ANSWER (27) OF 29 HCA COPYRIGHT 2005 ACS on STN

No

91:148515 Organic electrolyte **battery**. Kahara, Toshishige;
Horiba, Tatsuo; Enado, Noboru; Tamura, Hirotake; Tanno, Kazuo
(Hitachi, Ltd., Japan; Hitachi Chemical Co., Ltd.). Jpn. Kokai
Tokkyo Koho JP 54075534 **19790616** Showa, 3 pp. (Japanese).
CODEN: JKXXAF. APPLICATION: JP 1977-142764 19771130.
AB An org. electrolyte **battery** consists of a light metal (
Li, **Na**, etc.) **anode**, a **nonaq.** org.
electrolyte, and a **cathode** prepd. by the addn. of CuO
and(or) Ag₂O to MnO₂. The addn. of CuO and(or) Ag₂O improves the
oxidizing power of MnO₂ and improves the **battery** discharge
characteristics. Thus, MnO₂ was added to a CuSO₄ soln. so that MnO₂
and CuO would be present in a 7:3 ratio. A 2M **Na₂CO₃**
soln. 200 mL was added and the mixt. heated to 130.degree. until the
blue CuSO₄ color disappeared. The mixt. was filtered, and the ppt.
was vacuum treated for 5 h at 150.degree.. This powder 10, graphite
1, and poly(tetrafluoroethylene) 0.5 parts were mixed, and pressed
at 3000-5000 kg/cm² to form a **cathode** (diam. 20 mm, elec.
capacity 150 mA-h). This **cathode** was used to assemble a
battery together with a **Li anode**, 1M
LiClO₄ in propylene carbonate as the electrolyte, and a Ni
battery case. The **battery** showed only a gradual
drop in potential from the initial 3.5 V when discharge across a 3
k.OMEGA. resistance, whereas a **battery** using a
conventional MnO₂ **cathode** (vacuum treated for 5 h at
150.degree. with CuO addn.) showed a rapid drop in cell potential.

IC H01M004-50
CC 72-2 (Electrochemistry)
ST **battery lithium** manganese oxide; cupric oxide
manganese dioxide **cathode**
IT **Batteries**, primary
(**lithium-metal** oxide, with org. electrolyte)
IT Electrolytic depolarizers
(manganese dioxide, in **lithium** org. electrolyte
battery)
IT 7439-93-2, uses and miscellaneous
(**anodes**, in org. electrolyte **battery** with
metal oxide)

IT 1317-38-0, uses and miscellaneous 7782-42-5, uses and miscellaneous

(**cathodes**, in **lithium** org. electrolyte **battery**)

L146 ANSWER (28) OF 29 HCA COPYRIGHT 2005 ACS on STN

91:29628 **Cathode** material for **nonaqueous** electrolyte

battery. Horiba, Tatsuo; Kahara, Toshiki; Ehado, Noboru; Tamura, Hiroki; Tanno, Kazuo (Hitachi, Ltd., Japan; Hitachi Chemical Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 54035328 **19790315** Showa, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1977-100401 19770824.

AB The **cathode** of a **nonaq.** electrolyte

battery using an **anode** consisting of a light metal such as **Li** and Na is obtained by uniformly depositing a noble metal on MnO₂. The use rate of the **cathode** is increased and hence the efficiency of the **battery** is improved. Thus, MnO₂ 40 g was added to an aq. soln. of AgNO₃ 31 g/L. **NaOH** (10%) 6 mL was added dropwise with stirring to ppt. MnO₂ coated with Ag₂O. The ppt. was then heated for 5-10 h at 180-230.degree. in Ar. This powder 10, graphite 1, and Teflon powder 2 parts were thoroughly mixed then pressed to give a **cathode**. A **battery** was assembled using the above **cathode**, a 1M LiClO₄ soln. in a 7:3 THF-MeOCH₂CH₂OMe mixt. as the electrolyte, and a **Li anode**. The **battery** showed an open-circuit potential of 3.50 V.

IC H01M004-08

CC 72-2 (Electrochemistry)

ST manganese oxide **cathode lithium anode**;

silver coated manganese oxide **cathode**; graphite Teflon silver **cathode battery**

IT **Batteries**, primary

(**lithium**, with **nonaq.** electrolyte)

IT Electrolytic depolarizers

(manganese oxide, silver-coated, in **lithium-org.** electrolyte **batteries**)

IT **Cathodes**

(**battery**, silver-coated manganese oxide plus graphite and Teflon)

IT 7439-93-2, uses and miscellaneous

(**anodes**, in org. electrolyte **batteries** with oxide **cathodes**)

IT 9002-84-0

(**cathodes** contg., **battery**, with graphite and silver-coated manganese oxide)

IT 7440-22-4, uses and miscellaneous

(**cathodes**, **battery**, coated on manganese oxide)

IT 7782-42-5, uses and miscellaneous
(**cathodes, battery**, with silver-coated
manganese oxide and Teflon)